American Aviation

MANAGEMENT
ENGINEERING
OPERATIONS
MAINTENANCE
EQUIPMENT

DEC. 8
1952

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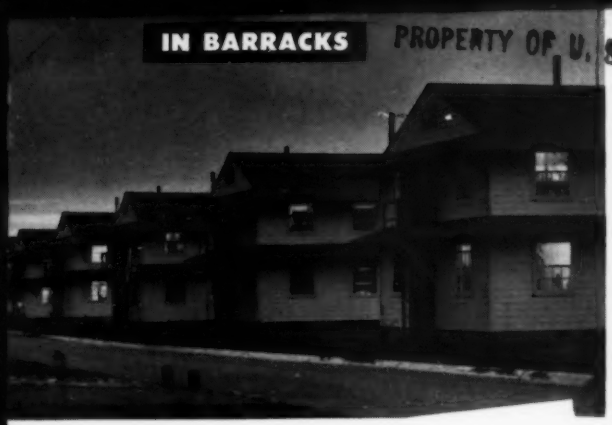


1000 = 1

on the ground **in the air**

No one seems to have worked out specific figures on the *total number* of people on the ground it takes to keep one man in the air.

But a ratio of a thousand-to-one would be a pretty fair estimate—if you included administrative and production workers as well as operating personnel.

And this same ratio would make a pretty fair estimate, too, when it comes to Honeywell controls.

That is, for every Honeywell autopilot, fuel measurement system, gyro, actuator or other control in the air, a thousand other strictly "chairborne" Honeywell controls are called for on the ground. Controls that furnish comfortable, workable "climate" in offices, barracks, hangars, cafeterias and clubs. Controls that promote efficiency on the aeronautical production line. Precise instruments that control industrial processes and conditions in labs and in field tests.

New development programs for both ground and airborne controls for the aviation industry are constantly being initiated at Honeywell. And their number will increase in the years to come—because *automatic control* is such an important part of aviation progress. And *automatic control* is Honeywell's business.

MINNEAPOLIS
Honeywell
Aeronautical Controls

AIRTRENDS

No contracts have been let as yet for the development of a "stripped-down" fighter, the lightweight, non-complex aircraft that some officials feel would provide greater production potential and greater air superiority.

•

A heavy cargo helicopter competition has been set up by the U. S. Army, according to unconfirmed industry reports. Helicopter would be turbine powered.

•

Designated the XP6M-1, the new and "radically different" jet powered seaplane now in the early design stage at The Glenn L. Martin Co., will actually be a high-speed hit-and-run minelayer.

•

"Wait and see" attitude will be used by CAA Administrator Charles F. Horne, who reportedly wants to remain in his present post with the new Administration, rather than turning in his resignation as is customary in some top jobs.

•

A & E mechanic shortage shows no sign of abating and a plan may have to be worked out between the airlines and the established A&E schools for drawing more young men into the schools and industry.

•

Reduced accounting burden plus effective cut in air fares are the promise of repeal of the 15% travel tax which will be considered by the new Congress. Airlines will aid in the repeal fight sparked by the National Association of Travel Organizations.

•

Election of Pioneer Air Lines' Harding Lawrence as president of ATA's Air Traffic Conference is another sign of growing stature of the local service ailines in the over-all airline industry.

•

New high in piston engine commercial airline speed is being recorded by Air France's new service to the Far East with Lockheed 749 Constellations: 6,800 miles with two stops between Paris and Saigon and elapsed time of under 29 hours.

•

Germany's revived airline, still unnamed, will start operating next spring and should be fully developed within three or four years.

•

Concerned over Trans-Canada's order for turboprop-powered Viscount aircraft, Colonial Airlines is now shopping around for postwar four-engine equipment to replace its Douglas DC-4's.

•

Full-scale investigation of all Federal regulatory agencies is further indicated by Rep. Charles W. Wolverton (R., N.J.), the probable chairman of the House Interstate and Foreign Commerce Committee, who says a committee probe will determine if the agencies created or developed in the past 20 years should be continued.

The Washington View

Campbell's Still Coming

THE AIRCRAFT Production Board "staff study" for the reduction of military aircraft types, proposed by William L. Campbell, who has since left the government, and shrugged off by the Pentagon as being "naive," is being followed as far as aircraft are concerned but still totally ignored as far as its recommendations on power plants are concerned.

No ranking Pentagon official will admit that Campbell was at least partially correct in his findings but his basic premise, i.e., that many currently planned planes will be delivered too late to do any good and that the Navy and Air Force might as well emphasize some newer types, is rapidly proving sound.

Since the report was pronounced a dead duck, these actions have been taken, some of them officially announced. Some were planned before the report.

- **A 35% cutback** of the Lockheed F-94C and elimination of the Northrop F-89F program (which was planned but never contracted for) in favor of newer all-weather interceptors such as the Convair F-102.
- **Reduction in the Douglas AD-5** (13%), North American FJ-2 (33%), and Grumman F9F-6 (18%).
- **Ordering of the Boeing B-52** as the intercontinental jet bomber, rather than Convair's B-60.

The engine programs called for in Campbell's report, early phase-out of the Westinghouse J40 and added emphasis on the Pratt & Whitney J57 by having it built by Ford and Lincoln-Mercury, have not been ordered put into effect as yet.

New Service Tussle?

A revival of the Navy-Air Force battle over which service can better carry out certain functions seems to be shaping up. The dispute may or may not become public, depending on whether the Navy wants to make an open fight for more aircraft procurement funds when the fiscal 1954 budget is presented to Congress.

According to the best available information, President Truman's budget, to be submitted shortly after Congress convenes January 3, will call for $16.4 billion for the USAF, or about 40% of the $41 billion total. This will continue the Air Force's currently planned build-up to 143 wings but will supposedly hold the Navy to its present manpower strength.

Even if the Navy agrees to keep the squabble quiet, advocates of both services on the floor of the House and Senate will probably do enough talking to highlight the differences. Ohio's Sen. Robert A. Taft, for example, has stated that the USAF must be given "priority number one." But Rep. W. Sterling (R., N.Y.), an ardent supporter of the Navy, is a member of the House Armed Services Committee.

Production: Up How Much?

Aircraft Industries Association estimates military aircraft production this month will reach between 1,000 and 1,100 airplanes, approximately five times the 215 a month being turned out when the Korean War began. A casual comparison would seem to indicate that we are therefore making excellent progress on the aircraft program. But the situation is not quite so rosy. The U.S. is still getting most of its military aircraft in the form of fighters and other comparatively small aircraft, but bomber production is gradually catching up.

Airframe weight, still the best measure of production, has not gone up at the same rate as aircraft units. AIA gave no estimate for 1952 but its airframe weight guess for 1950 stands at 36.2 million pounds. In 1951, according to USAF Under Secretary R. L. Gilpatric, 50.2 million pounds were produced for the Air Force alone. It can therefore be estimated that the military services this year received somewhere between 90 and 100 million pounds. This is less than three times the 1950 figure.

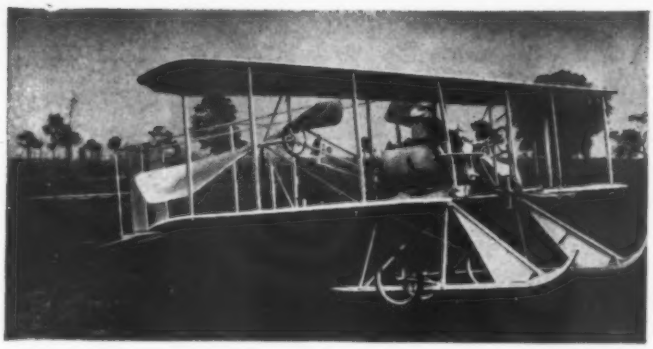
The current fiscal year will result in the production of 12,600 planes in all, AIA reports. Of these 9,000 were built for the military, 400 were commercial transports and the remaining 3,200 are utility types.

Machine Tool Build-up

It is somewhat ironic that the Pentagon and the nation's civilian defense mobilizers are agreed that the U.S. should stockpile machine tools and thus help keep tool builders at a satisfactory level of production (see page 20), but at the same time no responsible government official has proposed a similar scheme with regard to the aircraft industry.

There is no doubt that aircraft makers want a minimum of government interference with their operations but, as they have pointed out so often in the past, they would like some sort of military aircraft planning that will enable them to have a reasonable level of production. This would do away with the boom-and-bust, expansion-and-contraction situation which takes place whenever the country finds itself in danger and calls for a quick build-up of air power.

. . . Robert M. Loebelson



THEN and NOW

Dependability Comes First!

SINCE the Navy began flying wheeled aircraft in 1911 with the Wright Brothers B-1, they've always been sticklers for dependability—just as they are today with the "Skyshark," first Turbo-Prop shipboard fighter to join the fleet. And ever since Goodyear built the first Wing Airplane tire for the early Wright ships, dependability has been the watchword here, too.

The Douglas A2D "Skyshark" is the latest in a long line of Navy planes 100%-equipped with Goodyear Tires, Tubes, Wheels and Brakes—selected again for their proved ability to withstand the strains of carrier deck landings and take-offs.

Wherever greater safety and dependability are concerned, Goodyear equipment gets first call—in military and naval service as well as on commercial and private craft. For further details on any Goodyear product for aviation—tires, tubes, wheels, brakes, bullet-sealing tanks, Iceguard equipment and Airfoam Super-Cushioning—write:

Goodyear, Aviation Products Division
Akron 16, Ohio or Los Angeles 54, California

GOODYEAR
AVIATION
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Iceguard, Airfoam—T.M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

American Aviation

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Official Airline Guide: Monthly publication of airline schedules and fares. Subscriptions: U. S. A. and countries belonging to the Pan American Postal Union, including Spain and the Philippines, $11.00 one year. Canada, $11.50. All other countries, $12.50. Published from editorial offices at 139 North Clark St., Chicago 2, Ill. Central 6-5804. Robert Parrish, managing editor.

American Aviation Traffic News (incorporating Air Tariff Reports): Published daily except Saturdays, Sundays and holidays. Subscriptions: $150 a year. Wallace I. Longstreth, managing editor.

Cutting Costs instead of Chips

GENERAL MOTORS engineers have come up with a new and extremely simple way of making turbine engine compressor blades that promises to save our country millions of dollars in man-hours, plant facilities, tools and critical materials.

This new method, developed by Delco-Remy Division in cooperation with Allison, is a cold-forming process that brings the projected cost down to a fraction of the present average cost of blades.

The full importance of this development in terms of our national economy is pointed up by the fact that a single jet engine may use as many as 6,000 blades.

Under blade-making methods now widely in use, excess stock is cut and machined away after high-alloy steel, rich in critical material, is forged or cast into the blade form. Delco-Remy, which has a world-wide reputation as an efficient mass producer of intricate automotive equipment, had learned how to cold-form metal by actually *pushing* it into shape, rather than cutting it.

In this way, nearly all of the material goes into the finished product and there is very little scrap from the manufacturing process. Delco-Remy engineers, in collaboration with Allison, adapted this method to blade processing. Blades made in this manner are rolled from cold flat strip stock with no chips to cut—thus saving valuable time in manufacture, as well as large quantities of precious material.

Blades produced by this process have been tested by Allison in T40 engines and their endurance characteristics have proved comparable to standard forged blades and to cast blades.

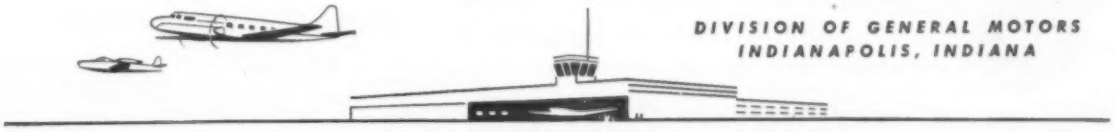
Developments like this help to explain why Allison turbine engines are produced at lower cost per pound of weight and per pound of thrust than any other turbine engines in the world.

And they offer further proof that Allison does make good use of its opportunity to draw on the special skills and experience of the entire General Motors organization — including the famed GM Technical Center in Detroit. This backing, plus its own vast engineering resources, provides Allison with unequaled facilities for truly advanced accomplishment in better—and less costly—gas turbine engines.

GM
GENERAL MOTORS

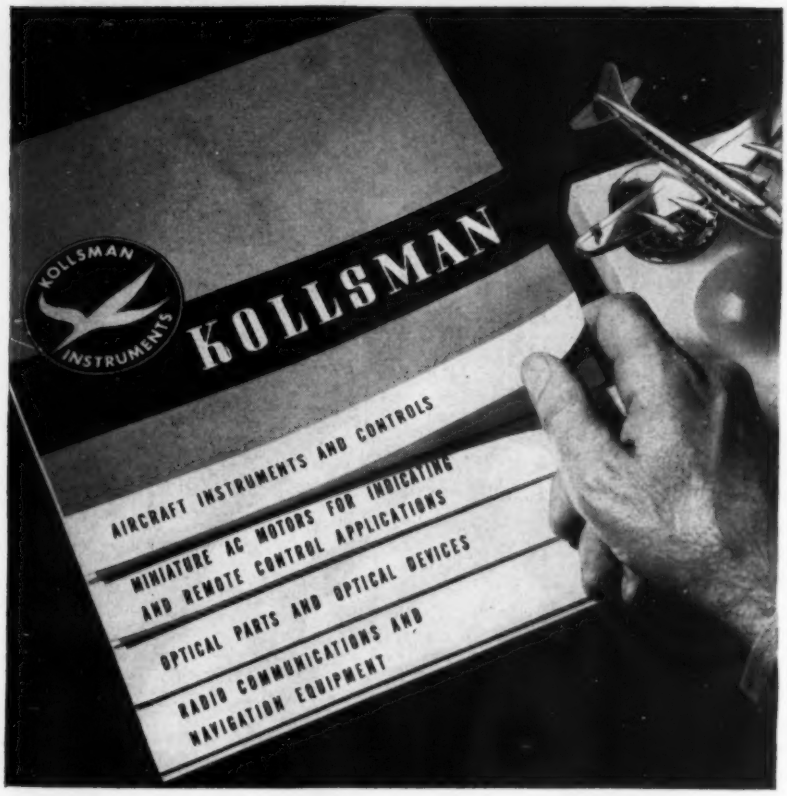
Allison

DIVISION OF GENERAL MOTORS
INDIANAPOLIS, INDIANA



World's most experienced designer and builder of aircraft turbine engines

J35 and J71 Axial, J33 Centrifugal Turbo-Jet Engines, T38 and T40 Turbo-Prop Engines



Which part interests YOU?..

Perhaps that's one question that rightfully belongs with your *future* planning.

For, like ourselves, your manufacturing divisions may be toiling night and day in the interests of America's safety.

But to research scientists—seeking the solution to some intricate problem of instrumentation and control—Kollsman offers an experienced hand. A reputation based on inventive ingenuity, precision craftsmanship and world-over acceptance of its products.

In manufacture or research, there is no finer name than Kollsman—designers, developers and makers of:

Aircraft Instruments and Controls Miniature AC Motors for Indicating and Remote Control Applications • Optical Parts and Optical Devices • Radio Communications and Navigation Equipment

KOLLSMAN INSTRUMENT CORPORATION
ELMHURST, NEW YORK GLENDALE, CALIFORNIA
SUBSIDIARY OF
Standard COIL PRODUCTS CO. INC.

When & Where

Dec. 9—Air Transport Association, Board of Directors Meeting, Carlton Hotel, Washington, D. C.

Dec. 10—Air Transport Association, Members Meeting, Carlton Hotel, Washington, D. C.

Dec. 10-12—Joint AIEE-IRE-ACM Conference on Electronic Computers, Park Sheraton Hotel, New York.

Dec. 12—2nd Convertible Aircraft Congress, sponsored by Institute of the Aeronautical Sciences, Philadelphia Section, and American Helicopter Society, Franklin Institute, Philadelphia, Penna.

Dec. 17—16th Wright Memorial Lecture, Chamber of Commerce Auditorium, Washington, D. C., 3:00 p.m.

Dec. 17—Aero Club of Washington, Annual Wright Memorial Dinner, Statler Hotel, Washington, D. C.

Jan. 12-16—SAE Annual Meeting and Engineering Display, Sheraton-Cadillac Hotel, Detroit.

Jan. 14-16—AIEE-IRE-NBS Conference on High Frequency Measurements, Statler Hotel, Washington, D. C.

Mar. 25-27—SAE, Production Forum, Statler Hotel, Cleveland, Ohio.

Apr. 20-24—SAE, Aeronautic & Aircraft Engineering Display, & Aircraft Production Forum, Hotel Governor Clinton, New York.

International

Feb. 24—ICAO, First Air Navigation Conference, Montreal.

Apr. 20—IATA, 6th Technical Conference, Puerto Rico.

Letters

Letters should be addressed to The Editor, American Aviation Magazine, 1025 Vermont Ave., N.W., Washington 5, D. C. Anonymous letters will not be printed, but names will be withheld upon request.

THANKS FROM CENTRAL

To The Editor:

As an employee of Central Airlines, and on behalf of the fifty-three other people that work with me in station operations, we wish to thank you very much for your interest in our airline.

You have been more than fair to us in trying to present our trials and tribulations, and our faults and features to the airline industry.

So, to you and to your staff our most worthy thanks—win, lose, or draw, you and your publications have given us a "fair shake." Thank you.

W. R. NAIL
Supt. of Stations
Central Airlines
Fort Worth, Texas

•

MORE KUDOS

To The Editor:

Congratulations on AMERICAN AVIATION's issue of 27 October, "Annual Accessory & Equipment Issue!" This is most informative and interesting, and will be of considerable value to us in purchasing.

FRED G. BETTS
System Director of Purchasing
Trans World Airlines, Inc.
Kansas City, Mo.

•

To The Editor:

I have written a short note to Joe Murphy telling him how much we here at Stratos thought of the current issue. I thought you too would like to know we, as an accessory company, are very pleased to see such attention devoted to equipment.

E. E. HENKEL
Public Relations Manager
Stratos Div., Fairchild Engine & Airplane Corp.
Bay Shore, New York

•

DOG-EARRED

To the Editor:

We would like to compliment you on your October 27th issue of AMERICAN AVIATION in connection with the listing of the various products of manufacturers which are available in the electronic field. We believe that such a listing serves a real purpose and are sure that your October 27th issue will be very dog-earred before it is finally relegated to the shelf.

H. S. CHRISTENSEN
Field Engineering & Sales
Aircraft Radio Corporation
Boonton, New Jersey

•

INVALUABLE

To The Editor:

Congratulations on your October 27 special accessory and equipment issue. It's the best yet.

Informative, detailed, graphic—and a format that is easily read and understood. Your approved overhaul times break-down has been clipped out and filed for our engineers. It will be invaluable to us in our cooperative engineering service.

AUBREY KEIF
Manager, Aviation Sales Division
The Texas Company
New York City

•

ALASKAN SERIES

To the Editor:

I though the articles that you wrote on Alaska were very good and covered the situation well.

R. D. FENNO
President
Bristol Bay Airlines

To the Editor:

We have all been following your articles on Alaskan flying and find them to be most interesting.

G. A. BODDING
Chief Pilot
Ellis Air Lines
Ketchikan, Alaska
Dillingham, Alaska

•

SEX APPEAL

To the Editor:

I, too, have just returned from an inspection trip of airlines in Alaska, and feel that I am qualified to state that your article on Pacific Northern is most factual and extremely interesting.

I think it is a very well-written report on the company, with just enough sex appeal to satisfy the most lustful of your readers without embarrassment to the management.

I sincerely appreciate your courteous handling of this for us.

A. G. WOODLEY
President
Pacific Northern Airlines, Inc.

•

AUTOPILOT STORY

To The Editor:

Bill Lear, after reading the article by Joe Murphy on the Lear Autopilot in your September 15 issue, was highly pleased with his presentation. He stated that it was the most straight-forward technical treatise on the autopilot that has been printed.

DAWKINS ESPY
Vice President & Chief Engineer
Lear, Inc.
Grand Rapids, Mich.

•

DUPLICATE INITIALS

To the Editor:

In your August 4, 1952, issue I note that California Central Airways is referred to as "CCA" in the text of the article on pages 23 and 24. Also the cut illustrating this airline's new paint job on their planes prominently displays the letters "CCA."

I was under the impression that "CCA" was the Cuban affiliate of PAA, Compania Cubana de Aviacion, S.A. It appears there is some duplication.

J. D. WHITESIDE
Miami Springs, Fla.

•

DOVE SPEED

To the Editor:

In the November 10th issue of AMERICAN AVIATION a most interesting article was published on corporate aircraft.

While I was indeed pleased to see that the Dove comes closest to the "ideal" specification I was disappointed to see that the published cruising speed was well below the figures quoted in our brochure. The article stated that the Dove cruises at 155 mph but our published performance at 8,000 feet is 179 mph T.A.S. at 60% power, and 202 mph T.A.S. at maximum weak mixture cruising power.

I know from experience that speed is considered almost the greatest asset in executive flying, and I feel therefore that quoting a cruising speed of 155 mph could stimulate a certain amount of unjustified criticism of the Dove on the score of performance.

The figures given in our brochure are the results of most careful measurement, and although I am aware that some of the external equipment in the shape of the large variety of antennaes that executive operators frequently hang on their aircraft could make a certain reduction in performance, in all fairness to de Havilland and what in our opinion is a very good airplane I do feel you should correct this statement.

I. S. FOSSETT
U.S. Representative
The de Havilland Aircraft Co., Ltd.
Linden, N. J.

(The two de Havilland brochures used as reference, apparently out of date, listed recommended cruising speed at 5,000 feet at 155 mph.—Ed.)

Editorial

Where's The Museum?

THE GOLDEN anniversary of the age of flight begins December 17 and many plans are underway to make this 50th year of powered flight mean something to the nation.

Isn't it high time to revive the National Air Museum and carry the original plans to completion? Several years ago Congress passed the enabling legislation which authorized the building and maintenance by the Government of a national museum to house the great collection of historical airplanes and other aeronautical items which are now so inadequately housed in the limited facilities of the Smithsonian Institution. But no money was ever appropriated by Congress to carry out the plans.

by W. W. P.

It seems to us that the National Committee to Observe the 50th Anniversary of Flight, headed by Lt. Gen. James H. Doolittle (ret.), could well make the completion of a National Air Museum a top project for the year starting December 17. Perhaps Jimmy Doolittle has already taken some initial steps in this direction.

One suggestion which came to us from C. A. Petry of Aeronautical Radio, Inc., is that the museum should be totally or partially financed by pennies, nickels, and dimes from school children, dollars from the public, and substantial donations from industry. This would seem to be a very worthy idea.

Not only is this golden anniversary a fitting time for action, but if many more years pass it will be increasingly difficult to preserve and to collect historical items for the museum. We hope Jimmy Doolittle will put the museum at the top of the Committee's plans.

A Place to Expand

Lockheed's study of domestic air freight potential in the United States, published in the last issue of this magazine, was a timely contribution to a subject which often gets relegated to the background amidst the whirl of military and other aviation developments.

The Lockheed prediction that air freight will reach a one billion ton-mile annual level by 1958, and will represent about $175 million in annual revenue to domestic airlines exclusive of mail, express, and passengers, is not to be taken lightly.

Quite a few domestic scheduled combination airlines are still subordinating air freight as a major activity, one reason being that air freight is supposed to have a low profit margin. But Slick Airways and The Flying Tiger Line have continued to move up in volume until now they occupy a rather dominant position in the entire air freight picture, and there is no reason to suspect that their rate of climb will not continue. Only American Airlines among the combination carriers is really emphasizing air freight, with United and TWA following next in line of interest.

It is becoming of utmost importance in our nation's defense planning that there be the biggest possible reserve fleet of cargo airplanes available for any emergency that may arise. Even with the present efforts in developing air freight, and assuming that the Lockheed predictions come true, we still need more airplanes at work commercially under the American flag.

We have long thought that international air freight was not being exploited sufficiently, largely due to the lack of understanding by the Civil Aeronautics Board as to what constitutes international air traffic. Seaboard & Western has built up an enviable record despite all of the handicaps it incurred as a partially recognized "large irregular." Transocean Air Lines has also pioneered some new fields.

While in London last September this editor visited the Baltic Exchange, the meeting place of shipper and carrier which operates very much like a stock or grain exchange. Several years ago the Baltic Exchange added air transport to its numerous activities and while the air volume is still very small, here is the beginning of something important for international air transport.

Baltic Exchange

The Baltic Exchange, which probably got its name from the early shipping in the Baltic area, was developed a great many years ago when steamship companies needed to know what tonnage was available throughout the world. On the floor of the exchange are agents for the shipping companies who make known the movements or availability of vessels. Also on the floor are brokers who have shipments to be made. It is, in short, a market place where deals can be made and closed in a few minutes for shipping covering the entire world.

A broker may have a shipment of wheat from Melbourne destined for Rio de Janeiro. A tramp steamer may be unloading products at Melbourne and be available to take on the wheat. By the same token, Seaboard & Western Airlines may have a shipment of oil equipment to Dahran, Arabia, and needs a return load. Perhaps in Bombay or Cairo there is an air load to come back to Europe or to the U. S. In the Baltic Exchange the shipper finds a carrier, and the carrier finds his loads.

There is no such exchange in the United States, but more than one American air carrier has become aware that there is an exchange in operation every day in London. The British have been more aware of international air trade than we in the United States, although despite this awareness the British have given surprisingly little encouragement

HERE'S GOOD NEWS!

NEW TVOR

- increases plane let-down safety for any airfield
- changes "fair-weather" to all weather airline service
- permits marginal weather landings by private and executive aircraft.

AT LESS THAN *one fourth the cost of* VOR!

This new terminal VHF omnidirectional radio range adds safe instrument approach facilities to any airport. CAA approved. Installs directly on the airfield. Includes field detector, antenna and installation test equipment. *And is available on 90 day delivery.*

Made by a company specializing in VOR systems for the CAA and foreign governments, TVOR radiates 50 watts of power, ample for most installations. Time tested circuits, using the same quality components and given the same rugged tests as CAA equipment, are easy to maintain and service. Installation operates almost entirely without attention. Any plane with standard VOR instrumentation can make precision approaches to a TVOR equipped field.

TVOR can build your field's air traffic by extending service through marginal weather . . . increase airline passenger service by eliminating flights lost due to rain and fog . . . brings corporation aircraft to their home field in spite of low ceilings.

Flight test TVOR with your own plane at the College Park Airfield. Visit our factory at the edge of the field. Inspect the equipment. Convince yourself that your group can not afford to be without low cost, high quality TVOR.

TVOR single unit installation needs only an inexpensive shelter on the field.

TVOR commercial transmitters are the same as those designed and built for the CAA.

TVOR changes fair-weather to all weather airline service.

TVOR guides corporation aircraft to their home fields, in spite of low ceilings.

TVOR works with standard instrumentation. Private planes "home" on their own airfield.

MARYLAND ELECTRONIC MANUFACTURING CORPORATION

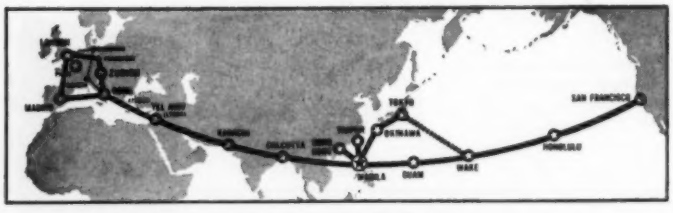
COLLEGE PARK 16, MARYLAND

Every *passenger a* **VIP** *with* **PAL**

From San Francisco to the Orient, and onward to Europe — over some 19,000 miles of air routes — travelers along PAL's Route of the *Orient Star* know the meaning of *personalized service*. This is PAL's way of making *every* passenger feel that to us he is a V. I. P. (Very Important Person).

PAL believes it has an obligation to meet the needs of the traveling public for transportation unsurpassed in comfort, convenience and dependability. PAL personnel are carefully selected and trained with but one objective — to meet those needs in a courteous and efficient manner. By this means PAL is helping to promote the good will and confidence so necessary for the continued advancement of international air travel.

Modern, dependable DC-6 equipment . . . experienced flight crews . . . consistently reliable schedules . . . and PAL's friendly, *personalized* service are encouraging more people to travel more often by air.



For air travel at its finest, fly with PAL along the

ROUTE OF THE Orient Star

PHILIPPINE AIR LINES

M.R.S. Bldg., Plaza Cervantes, Manila, Philippines

OFFICES IN PRINCIPAL CITIES AROUND THE WORLD

and freedom to their independent operators.

But it is clear that unless the U. S. wakes up, and encourages and/or prods its scheduled and nonscheduled international operators, the U. S. will take a back seat in the steadily growing world air freight business.

The weakness in the CAB approach to its foreign air policy is that it seems able to conceive only of passenger traffic moving out from a U. S. port to specific destinations and then moving back again. This is fine for our national interest traffic, but international traffic flows in many other directions and indeed, may not touch the U. S. either directly or indirectly. There is no reason under the sun why U. S. independent air carriers should not participate in this world traffic and do so with the encouragement of the Government and with whatever support and backing is necessary.

Domestic air transport is proceeding apace. So is U. S. certificated air transport internationally. But there is another area, the "tramp steamer" area, which should be encouraged. If we want to develop an ever-larger reserve fleet of cargo airplanes, the international field is the ideal place. Such activities need not compete adversely or unfairly with scheduled combination carriers.

. . . WAYNE W. PARRISH.

PHOTO CREDITS

Cover—Convair

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In El Paso, too, air travelers can step from the plane into a car from Hertz

here, as at most airports, HERTZ is ready to give your passengers the finest car rental service!

Yes, the Hertz station at El Paso International airport, El Paso, Texas, is just one example of the excellent facilities and superior service offered by Hertz stations everywhere. For your passengers, who expect the best, only Hertz offers them *all* the advantages of car rental service.

Here are the reasons why HERTZ SERVICE is better for the air lines:

- Hertz, and only Hertz, can and does deliver cars to airports in more than 500 cities. Hertz maintains stations right at or adjacent to the airport in most key cities.
- Hertz with 28 years' car rental experience is dependable. It is the world's largest and only international car rental service—uniformly conducted in more than 500 cities throughout the United States, Canada, Great Britain, Mexico, Hawaii, Alaska and Switzerland.
- The Hertz national advertising program consisting of full page advertisements throughout the year in Life, Saturday Evening Post, Collier's, Holiday, National Geographic, Time, Newsweek, and U. S. News & World Report, promotes the Plane-Auto Travel Plan, creates new air travelers, puts new business on your planes and builds Hertz popularity and prestige.
- Your passengers, reserving cars from Hertz before they take off, can be sure of fine, new cars that are clean and properly conditioned. All gasoline and oil are furnished. Also, Public Liability, Property Damage, Fire and Theft Insurance and $100.00 deductible collision protection are provided at no extra cost.
- Your passengers can rent from Hertz day or night for any length of time and enjoy quick, courteous, efficient service. Hertz National Courtesy Cards and International Charge Cards are carried by more than a million and a half men and women and are honored at all Hertz stations.

IMPORTANT!

Encourage your ticket sellers and information clerks to always recommend Hertz Service to your customers. It's the world's finest car rental service...and promotion of Hertz Service will pay off in more customer good will and extra business for you. Also, promote this popular service in your national and local advertising, direct mail and counter literature, and other advertising programs.

- Air Travel Cards—are honored at all Hertz stations. They serve as identification, eliminate deposit requirements, and provide credit privileges if desired.

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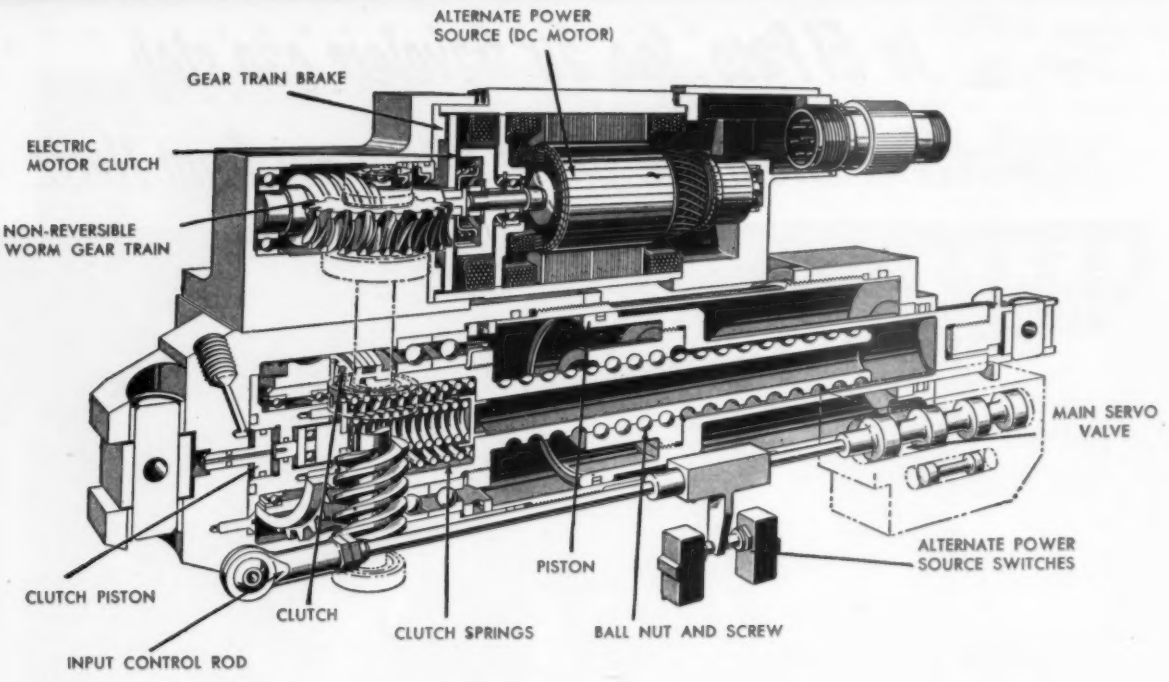
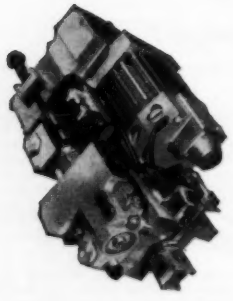


GET NEW DESIGN FREEDOM WITH AEROPRODUCTS SELF-LOCKING ACTUATORS



APPLICATIONS

- Stabilizer Control
- Jet Engine Variable Nozzle
- Dive Brakes
- Variable Wing Incidence
- Flap Actuation
- Aileron Control
- Variable Wing Sweep
- Bomb Bay Door
- Cargo Door
- Landing Gear
- Turret Control
- Canopy and Seat Control

Instantaneous and positive in action, the new Aeroproducts actuator automatically locks itself in any position. This self-locking feature gives absolute control of any movable part, eliminating design limitations that have heretofore prevented development of many aeronautical advancements.

Aeroproducts actuators may be coupled in series or tandem to give identical, simultaneous control of more than one movable part. The basic design is infinitely variable for hydraulic, pneumatic, electric or manual operation, or any combination of these.

Designs are already in use for variable control surfaces and jet engines. Others are in process for guided missile and various commercial applications.

Actuators now in production are for:

Republic F84F Flyable Tail
McDonnell F3H Horizontal Stabilizer
Others unannounced

GM GENERAL MOTORS

Building for today
Designing for tomorrow

Aeroproducts

ALLISON DIVISION • GENERAL MOTORS CORPORATION • DAYTON, OHIO

Vertical Take-Offs: Answer for Carriers?

LIKE THEIR LAND-BASED counterparts, naval aircraft are getting bigger and faster, and, as corollary, they require longer take-off runs and greater landing area. This is a cause of some concern to the Navy, because carrier deck lengths cannot be increased proportionately.

The new Forrestal Class carriers, for instance, have an overall length of 1,040 feet. This is an increase of only 54 feet over the next largest size carrier, the 986-foot Midway Class. But, in gaining that extra length, it was necessary to increase the standard displacement from the Midway's 45,000 tons to 59,000 tons for the Forrestal, with a consequent rise in cost. The Forrestal will cost well over $200,000,000 by the time it is completed, plus an additional sizeable sum to equip it for operational service.

It can be seen from the above figures what a deck length increase of 200 to 300 feet beyond the Forrestal size would require in terms of size and money. And even a deck of that size might not be adequate for future Navy plane types.

Obviously, continued stretching of the carrier deck would eventually result in the carrier's pricing itself out of business. This fact has given impetus to research on a new Navy idea—the "VTO" aircraft.

VTO stands for "vertical take-off" and means just that—a plane whose engine (or engines) develops more than one pound of thrust per pound of airplane gross weight, permitting take-off without a deck run, somewhat in the manner of a guided missile. The high gross weights of new and contemplated Navy aircraft will impose tremendous power demands, well above thrust ratings of engines now in service or in production, but power plant research indicates that some extremely high thrust engines will be coming along in a few years.

The vertical take-off, though, is only half the problem. The plane must still return to the carrier, and landing a supersonic fighter or attack bomber without increasing current deck lengths appears to be the more troublesome part of the development program. It is possible that the high engine thrust may be utilized in a high-angle-of-attack, low-speed approach. This, plus perhaps a new type of arresting gear, may solve the landing problem.

The Office of Naval Research is now actively pursuing the VTO line of thought. The program is still in the embryonic stage but it shows promise, and successful development of the VTO may prove the answer to one of the most pressing questions in naval aviation today.

The F-86D Hits 700

Although the Air Force's North American F-86D failed to average 700 miles per hour on its successful attempt at a new world's speed record (it missed by less than one-tenth of a mile per hour), it actually did top 700 mph on two of its four passes over the measured course. This is the first time an operational plane has ever been officially clocked at better than 700 mph, although research planes have flown as fast as 1,238 mph.

The regulations of the Federation Aeronautique Internationale, world monitoring agency for official records, require that a plane make four runs over the speed course, two in each direction. The clocked speeds of the F-86D on its four passes were: first, 698.4 mph; second, 698.0 mph; third, 702.6 mph; fourth, 700.4 mph. This works out to an average of 699.92 mph, the figure which will be submitted to the FAI for official confirmation.

USAF officials, however, are not at all convinced that the F-86D hit its top performance. Temperature was an important factor in the speed test; higher speeds can be obtained at higher temperatures where the speed of sound is higher. For this latest speed record, the USAF had hoped for a temperature of 90° or better; instead, the test was run at 75°. At the higher temperature, some USAF officials feel that the F-86D can approach 715 mph, and it is not unlikely that the plane will be given another crack at the record.

It is also not unlikely that the USAF will seek to better its record at a later date with other aircraft types. A good prospect is the Republic F-84F, swept-wing version of the Thunderjet now in service, first production model of which was scheduled to make its initial flight as this copy went to press. The "F" is understood to have speed capabilities well beyond the 700 mph mark.

Fencing Class

The Air Force and the Navy are continually beefing that aviation trade publications, such as this one, play hob with their "security." Although, as repeatedly stated in this column, this "security" consists for the most part of policy classifications, or in plainer English, hiding information which might embarrass the brass, we are willing to concede that there are a number of legitimate items which might better be left out of print.

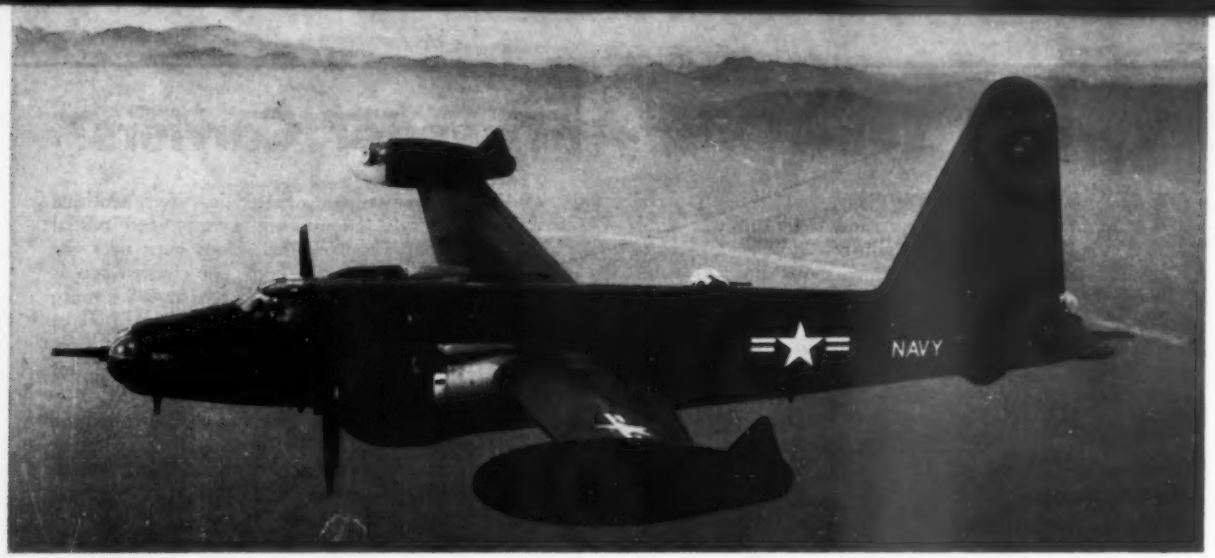
However, we would like to point out that the sources of these legitimate items are usually the Air Force and Navy themselves, through an inadvertent remark of a brassman, a slip in clearing a press release, or some such means.

We have a case in point.

Last week, Assistant Secretary of the Navy for Air John F. Floberg complained that, for several months, pieces of information about the Navy's new Convair F2Y-1 flying boat fighter had "slipped through our security fence."

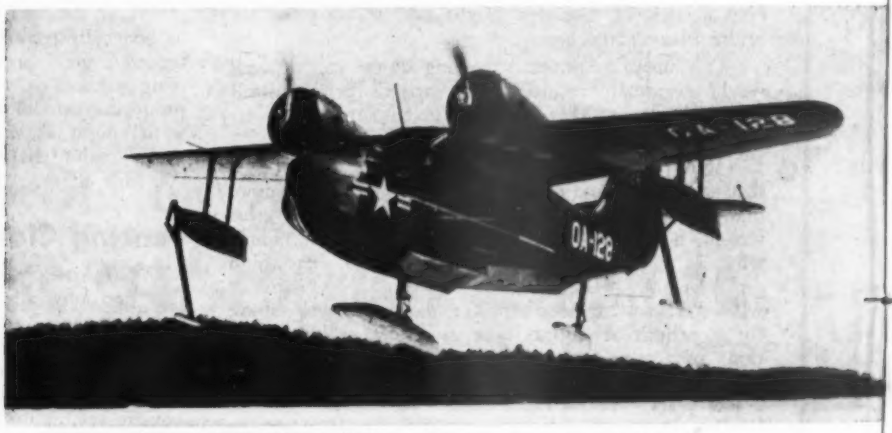
Since we had written the first piece on the existence of the F2Y last March, we were somewhat hurt by this allusion to our espionage work. But happily we remembered the source of the disclosure. The plane, identified as a seaplane fighter, including the model designation, the company which was to build it and how much it would cost, was discussed, in appropriations hearings made public on March 28, by Capt. Allan M. Shinn, USN, Head, Aircraft Programs Section, Office of the Deputy Chief of Naval Operations, Air, with an assist by committeman Rep. Richard B. Wigglesworth (R., Mass.).

. . . JAMES J. HAGGERTY, JR.



First flight of Navy P2V-6 Neptune, specially designed for anti-submarine warfare and mine laying by Lockheed Aircraft Corp., is shown above. Powered by turbo-compound engines, new plane is 12 inches longer than earlier Neptunes, and carries a wide selection of secret armament, with smaller radome and wingtip tanks. Pressure fueling and stainless steel nacelles have been added.

The Military Scene

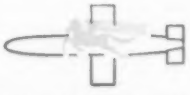


Vee-shaped hydro-ski tests have been conducted with Grumman amphibian by Edo Corporation. Ski performs on ice and snow as well as on water and has cambered upper surface to provide hydro-dynamic lift when submerged. Ski shown in photo is fixed, but future applications will have retractable ski. Hydro-ski permits design of aerodynamically ideal hull with no penalty in weight or configuration.

Pointed Fiberglass cover of Lockheed F-94C wing pod "sidearm," which holds 12 2.75 in. rockets, automatically disintegrates a second before the rockets are fired.

BIRTH OF A BIRD

In the case of guided missiles, the "Birth of a Bird" is not something which happens in a few spring weeks. Creation of a new guided missile is a long and intricate project, one calling for a team of engineers, like that at Fairchild's Guided Missiles Division, which is skilled in many phases of engineering—one which knows how to weld electronics, aerodynamics, rocketry and a host of other specialties into missile systems that tomorrow will be front line defenders of freedom. With experience dating back into World War II, Fairchild's team of missile engineers today is designing and developing not only guided missiles but also complete missile systems including ground and support components.



ENGINE AND AIRPLANE CORPORATION

FAIRCHILD

Guided Missiles Division

Wyandanch, L. I., N. Y.

Other Divisions: **Aircraft Division,** Hagerstown, Md.
Engine Division, Farmingdale, N. Y
Stratos Division, Bay Shore, L.I., N. Y

B.F.Goodrich

20% more landings with new B. F. Goodrich dimpled tire

THE NEW B. F. GOODRICH airplane tire has a stronger cord body and new wear-resisting tread with dimple-like indentations in the rubber. These dimples provide better distribution of the tire load and reduce exposure to tread cutting. The tread design is a complete departure from conventional ribbed treads.

Northwest Airlines has complete performance data on all types of tires. When B. F. Goodrich introduced the new tire, it was quickly added to their test programs. As comparative records of dimpled tires began to come in, the results were impressive. Northwest engineers found it gave them 20% more landings per tire than the next best tire tested, recommended adoption of the new tire as standard equipment.

There are now 24 airlines who have switched to dimpled tires. Northwest's report on the service with this tire is typical of many others operating on both U. S. and overseas airports.

B. F. Goodrich is now producing the dimpled tire in seven sizes. The new, longer wearing tire is another example of BFG's leadership in rubber research and engineering. Other B. F. Goodrich products for aviation include wheels and brakes, heated rubber, De-Icers, Avtrim, Plastilock adhesives, Pressure Sealing Zippers, inflatable seals, fuel cells, Rivnuts, accessories. *The B. F. Goodrich Company, Aeronautical Division, Akron, Ohio.*

B.F.Goodrich
FIRST IN RUBBER

ESTABLISHED JUNE 1, 1937

World's Largest Aviation Publishers
American Aviation

VOLUME 16, NO. 14

ASSAULT TROOPS jump from H-19 of the 6th Helicopter Transportation Company as it hovers at assault site during maneuvers.

New Moves Boost Army Aviation Growth

Air Force memo allows for greater selection of aircraft types; plan to increase funds underway.

ARMY AVIATION, which has been undergoing a gradual build-up since 1947 when the Army and the Air Force parted administrative company, is due for another expansion. This is indicated by two new developments:

• **A new "memorandum of understanding"** between the Army and the Air Force, redefining the scope of Army aviation and providing the Army with broader limits in selecting the types of aircraft it will buy.

• **A plan to increase Army aircraft** procurement funds sharply in the coming years, from a base of $37,000,000 in the current fiscal year to well over $200,000,000 next year and the three succeeding years.

The new memorandum of understanding is the third such since the National Security Act of 1947 created a separate Air Force but allowed the Army to maintain a small number of aircraft for support of its own operations. The memos are designed to prevent the Army from buying aircraft whose operational employment might infringe upon the functions assigned the Air Force.

Original Memo

The original memo (1949) limited Army aircraft procurement to planes weighing not more than 2,500 pounds empty. A second memo, dated October 2, 1951, dropped the weight limitation and stated instead that an analysis of the use to which the planes would be put would be the determining factor.

The new memo, dated November 4, 1952, goes back to a weight limit basis as far as fixed-wing aircraft are concerned, but doubles the original allowable weight (new limit is 5,000 pounds empty).

Helicopters are excluded from the weight limit, provided they are to be used for Army-assigned functions. These functions include aerial observation, control of Army forces, command, liaison, and courier missions, aerial wire laying, transportation of supplies, equipment, and personnel within a comat zone, aeromedical evacuation within the battle zone, and artillery and topographic survey.

This "understanding" will be reviewed from time to time to keep the limitations on Army aircraft realistic in light of new technical developments and assigned missions.

The Army, with some 1,700 aircraft now assigned, will build toward a strength of 2,200 planes of both the

Where the Army Puts Its Planes

AIRCRAFT IN THE INFANTRY AND AIRBORNE DIVISIONS

	Two-place Fixed-Wing	Multi-place Fixed-Wing	Utility Helicopter	Cargo Helicopter
Division Hq. Co.	1	2	3	..
Division Signal Co.	..	..	2	..
Div. Combat Engr. Bn.	..	..	1	..
Div. Arty Hq. Btry	1	1	1	..
Four Field Arty. Bn.	8	..	..	..
Three Inf. Regt. Hq. Co.	3	..	3	..
	13	3	10	..

NOTE: Quantities of organic aircraft in the armored divisions differ slightly from the infantry and airborne divisions.

NON-DIVISIONAL UNITS

Corps Hq. Co.	3	3	2	..
Army Hq. Co.	2	6	..	..
Engr. Cmbt. Group. Hq.	..	..	2	..
Engr Cmbt. Bns.	..	..	1	..
Engr Topographical Bn.	1	..	3	..
Infantry Regts.	1	..	1	..
Field Arty. Groups	2	..	..	..
Field Arty. Bns.	2	..	..	..
Field Arty. Observation Bn.	..	..	3	..
Corps Arty. Hq. Btry.	2	1	..	..
Field Arty. Brigade	2	..	..	..
Sig. Bn. Corps	2	..	3	..
Sig. Operations Bn.	5	..	3	..
Hq. Co. Armd. Cav. Regt. (light)	2	..	..	..
Armed Recon. Bns.	2	..	..	..
Tanks Bns. (separate)	1	..	..	..
Ord. Acft. Maint. Co.	..	1	..	..
Transportation Helicop. Co.	..	..	2	21
Med. Air. Evac. Units	..	..	5	..
	27	11	25	21

"ARMY MULE" is new evacuation, assault and transport helicopter, designated the H-25 by Piasecki. Version of the Navy HUP, it can carry four to six men.

fixed-wing and rotary-wing variety. There is, however, no plan for a separate "Army Air Corps." Army aircraft are integral parts of the units to which they are attached (infantry, field artillery, etc.) and there is no overall air command.

Plans call for building up a tactical air lift within a combat zone, transporting troops and weapons from one site to another. Army aircraft will supplement conventional truck transport and provide new mobility for ground forces. Under the new memo, the Air Force retains such responsibilities as close air support, assault transport and other troop-carrying air lift, erial photography, tactical reconnaissance, and interdiction of enemy land power and communications.

Fixed-wing procurement is concentrated in three plane types:

- **Cessna L-19,** a utility liaison plane, used for artillery fire spotting, wire laying, ambulance and liaison work, etc.;
- **de Havilland L-20 Beaver,** a heavier plane used primarily for quick battlefront trips of top commanders and their staffs;
- **Beech L-23,** Army version of the Twin-Bonanza, used for light transport duty.

In the helicopter field, the Army is counting heavily on the 10-passenger Sikorsky H-19 and has a variety of other types under test and in limited use.

The big push in procurement expansion will come in the helicopter field, and particularly in the cargo-carrying helicopter. It was learned that the fiscal 1954 budget contains an Army request for a ten-fold increase in helicopter money—from $20,000,000 last year to $200,000,000 next year. This includes $170,000,000 for actual procurement of production types and $30,000,000 for development. This request is expected to be repeated in each of the three following years.

No procurement figure for fixed-wing purchases is available; while it will not go up on the helicopter scale, it is expected to top the $15,000,000 authorized this year.

As stated, the bulk of the helicopter money will go for transport types. Three helicopter transportation companies have already been formed and there are plans for at least seven more.

Pilots for the increasing number of Army planes are being recruited from both the officer and enlisted ranks of the Army. Requirements are a private license and 60 hours of fixed-wing flight time; age limit is 30. Army aviators are troop commanders of their basic service arms first and pilots second. Enlisted men who complete flight training are appointed warrant officers.

News Briefs

PEOPLE

Next chairman of the Joint Chiefs of Staff should be an air general, says **Arthur F. Kelly,** national president of the Air Force Association and vice president of Western Air Lines. Kelly sees this as "imperative" because in the beginning of an atomic war our capacity "during the few hours of decision, will be measured entirely in terms of air power."

•

His work in developing **Beaver and Otter** aircraft has brought the McKee Trophy to **Phil C. Garratt** of Toronto, managing director of de Havilland Aircraft in Canada. The trophy is awarded annually for the furtherance of Canadian aviation.

•

C. R. Smith, president of American Airlines, has been appointed to the Defense Department's Citizens Advisory Committee on Use of Manpower in the Armed Forces.

•

"The aircraft industry may be pricing itself out of business," warns **Brig. Gen. Walter G. Bain,** chief, procurement and production, Air Materiel Command. Rising costs of complicated modern arms may bring the nation to the point where it can not afford to defend itself, Bain told a meeting of the Society of Automotive Engineers. "I ask the engineers to accept the responsibility for producibility and cost," said Bain.

•

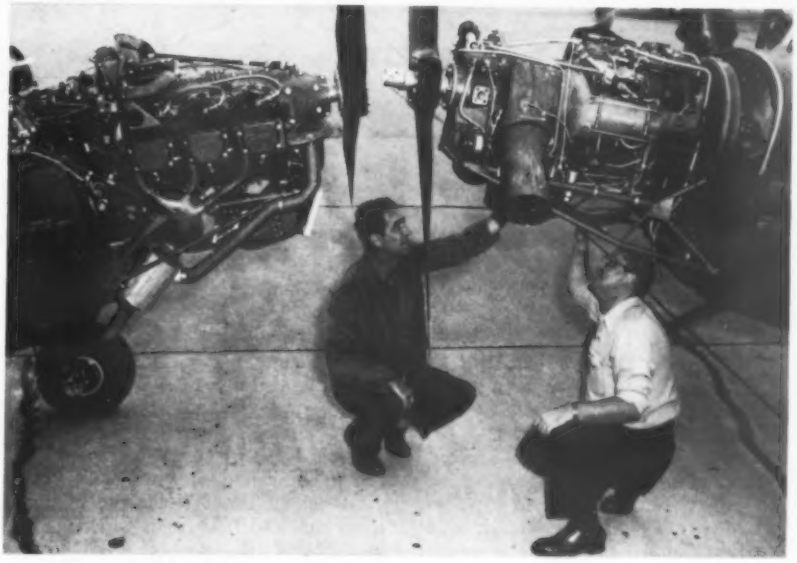
Oswald Ryan, who succeeded **Donald W. Nyrop** as CAB Chairman, will also succeed him as chairman of the **Air Coordinating Committee.**

•

A program to split up the costs of airborne radar is in the works, according to **M. G. ("Dan") Beard,** chief engineer of American Airlines. Several airlines are involved in the plan to help reduce the financial load that any single carrier would be faced with, Beard told an engineers' club at Sydney, N. Y.

•

An addition to the ranks of air-minded senators is newcomer **Barry M. Goldwater,** (R., Ariz.) who served in the Air Force as a pilot in World War II, holds the rank of colonel in the Arizona Air National Guard, and won an airborne campaign from Senate Majority Leader Ernest W. McFarland.



First turboprop-powered lightplane, the Cessna XL-19B, is shown at right, as two Cessna employes look over the Boeing model 502-8 gas turbine. The new Cessna is facing the standard L-19A, with its six-cylinder opposed piston-type engine mounted for comparison.

FINANCIAL

Creditors of U. S. Airlines, certificated all-cargo carrier, have been asked by the line's new management whether they would "make some adjustment on the debt owed or . . . give an extension of time."

•

It was better than nothing, but **BOAC** earned only $418,885 net profit in the first six months of its current fiscal year, almost $2 million less than it expected. Loss due to the fuel strike last May and a falling off of BOAC's mail loads are cited as reasons.

•

The bad news for **Braniff Airways,** on the other hand, came from its merger with Mid-Continent Airlines, the cost of introduction of Convair 340's, and mail pay losses in its Latin American Division. Result: net income of $311,484 for the nine months ended September 30, contrasted with $1.4 million the previous year.

•

The financial weather at **National Airlines** was also somewhat overcast. For the first quarter of its fiscal year, NAL's net was $86,236; for 1951, a similar period brought in $222,107.

TWA stockholders had the opportunity of buying some 381,000 shares of common stock at $16 per share, one new share for each share of common already held. The money was to go for general corporate services. New planes and equipment were to come from some $1.8 million in 3.75% **promissory notes** sold to a group of banks.

•

MILITARY

Convair's **turboprop flying boat,** the XP5Y-1, which has been plagued by engine and propeller troubles, is now flying about once a week, and the difficulties are reportedly clearing up. Convair is waiting for the arrival of **Allison T-40-10** engines, which will go into the second prototype instead of the T-40-4's which are powering the current model.

•

EQUIPMENT

Jet engine overhaul will be the sole function of the Air Force maintenance base at **Tinker AFB,** Oklahoma, by March 30, 1953. Base now overhauls mostly R-3350's.

•

Four **Convair 240's** will be sold to **Linee Aeree Italiane,** if present arrangements work out. Braniff Airways had acquired them when it merged with MCA.

Vital Machine Tool Build-up Planned

Multi-billion dollar program is outlined in Defense Department's 1954 budget on ODM's advice.

By Robert M. Loebelson

THE NATION'S top civilian and military mobilization officials, convinced that the time has come to switch their thinking from the current limited mobilization to preparations for an all-out build-up, will place before the 83rd Congress the beginnings of a program to prevent a repetition of the slow climb in aircraft production following the beginnings of World War II and the Korean War.

Shortly after Pearl Harbor, when the U. S. started calling for more and more aircraft, it was discovered that the plane build-up would have to wait until certain vital machine tools were built and delivered. And when Congress authorized jumps from 48 to 70 to 95 to 143 air wings after Korea, the aircraft industry again found itself unable to step up production for many months. Again the cause: shortage of machine tools.

But the fiscal 1954 defense budget submitted by the Defense Department to the Budget Bureau contains a request for a "down payment" on a multi-billion dollar program to buy and store the special-purpose machine tools which would be required for a new all-out emergency. And it will be up to the legislators to decide whether to axe out these funds in the interest of economy or to make adequate preparations for World War III, if and when it comes.

The Defense Department's request is the result of an interim report submitted by the Office of Defense Mobilization's Advisory Committee on Production Equipment, which was formed last summer to make plans for the tools needed in any future all-out war. This committee, headed by Studebaker Corp.'s board chairman Harold S. Vance, is also made up of such men as Clay P. Bedford, former production assistant to Defense Secretary Lovett and now president of Chase Aircraft; Lt. Gen. K. B. Wolfe, USAF (ret.), former Deputy Chief of Staff-Materiel; and Manly Fleischmann, former Defense Production Administrator.

Their report, indicating "a sense of great urgency" and noting that "major deficiencies in production capacity" for full mobilization are known to exist, called for the armed services to use some fiscal 1952 and 1953 funds which are still available to buy machine tools for the future. It also urged that the 1954 budget should provide for "another substantial increment" in the equipment-purchase and stockpiling program.

At the same time, Vance's ACPE urged the military services to:

- Proceed at once with the USAF and Navy Bureau of Aeronautics Production Acceleration Insurance Program, which would expand production capabilities, because it is sound in principle.
- Expedite the USAF's $389 million heavy press program to provide aircraft forgings and extrusions.

When Defense Mobilizer Fowler transmitted the committee recommendations to Lovett, the Defense Secretary indicated immediate acceptance of the machine-tool-procurement recommendations and said the other points would be given "thorough consideration."

There are no indications at present that Lovett's successor when the Eisenhower administration takes over, Charles E. Wilson, erstwhile General Motors president, will not go along with the program to obtain special purpose tools for the future. That is because the tool program, designed specifically to equip aircraft and other defense plants in case of war, dovetails with a concept put forth by Wilson several months ago—dual-purpose plants quickly convertible from commercial to defense output.

Fowler has indicated that while these tools would go mainly to privately owned plants, there might be a "few" instances where the Government would want to construct reserve plants and install the tools. If the 83rd Congress, therefore, wants to prevent government-owned plants in the future, it will have to watch the wording of any authorizations it makes for machine tool buying. Next year's budget, incidentally, will show the long-range tool money under the Defense Secretary's office, rather than under the individual services. The money each branch will seek for that purpose will be for any additional tools for the current buildup.

One other indication of the change in thinking now taking place is ODM's new Order 23. Entitled "Agency Responsibility in Completing and Maintaining the Mobilization Base," the order ties together the responsibilities of various government agencies in making their programs for all-out war. Among the programs which ODM intends to continue are:

- **Encouraging** expansion of industrial capacity by private enterprise with government aids for projects considered in the interest of national defense. (Responsibility: Defense Prodn. Admin.).
- **Administering** and scheduling materials orders and allocations. Estimating requirements and resources for full mobilization where required (Responsibility: National Prodn. Authority).
- **Encouraging** as many producers and facilities in military output as possible (Responsibility: Defense Dept.).
- **Encouraging** military producers to increase mobilization capacities by expansion and subcontracting so that only one-shift operations will be required, making multi-shift expansion feasible (Responsibility: Defense Dept.).
- **Acquiring** a machine tool reserve and putting these tools into place when desired and necessary to supplement capacity (Responsibility: Defense Dept.).
- **Urging** conservation of critical materials (Responsibility: DPA).

Bottom's up in latest view of the Lockheed F-94C.

Jack Garrett Scott
Under Secretary of Commerce for Transportation.

Beatrice Aitchison
Dir., Transport Economics, Dept. of Commerce.

Brig. Gen. Milton W. Arnold
ATA Vice President, Operations and Engineering.

Senator John W. Bricker
(R., Ohio)

Airway User Charges: They're Coming Closer

An economy-minded Congress and airlines with profits on their books may mean the time is now.

By PREBLE STAVER

THE prospect of the submission to Congress of legislation calling for user charges for the Federal airways is more real today than it has ever been before. Although there has never been any specific legislation introduced for this purpose, the President, in his annual budget message to the Congress, has been calling for airway user charges for several successive years.

The Bureau of the Budget, as well as Congressional Appropriations Committees, has also been urging airway user charges since 1945. Since the duty of sending the next budget message to the 83d Congress still rests with President Truman, despite the pending change in administration, he will surely repeat his request again.

The Federal airways have an estimated annual cost of $90 million, less than half of which is accounted for by new construction. Using the most lenient method of user charges which has been put forth, the domestic air transport industry and other civilian aircraft operators would be charged "about" $10 million per year as their immediate share of these costs. Charges would be raised as the users' ability to pay progresses.

User charges, viewed as a device to be used for offsetting or eliminating public aid, will have a great appeal to the incoming economy-minded Congress. Dedicated to a reduction in Federal expenditures, while at the same time committed to maintenance of the tremendous defense portion of the budget, Congress will leave no stone unturned in its efforts to slash costs in all other areas. When it is considered that the alternative to user charges can only be new taxation, the Congress will certainly give careful attention to a legislative program for user charges first.

While there exists general agreement within both industry and government that user charges are economically sound and equitable, the approach to the problem of setting a policy of user charges has been varied.

Leading personalities who have been closely identified with the question of user charges and who are responsible for the signs which point toward legislation during the next session of Congress include:

• **Jack Garrett Scott,** Under Secretary of Commerce for Transportation, who is heading the most ambitious program now in progress in the field, which is one of study, research and action to form a basis for recommendations by the Secretary of Commerce for proposed legislative and administrative changes. Scott, who will go out of office with the change in administration, is reported to be shooting for a target date of mid-December for completion of a report which can be submitted along with any recommended legislation to the 83d Congress after January 3.

• **Dr. Beatrice Aitchison,** who is considered the key figure below the policy making level on the problem of user charges within the Commerce Department, is coordinating the work and preparation of the Department's report in her post of director-transportation economics division of the office of transportation.

• **Senator John W. Bricker** (R., Ohio), who, as a member of the Interstate and Foreign Commerce Committee, can be expected to resume his previous activities on legislative matters affecting the nation's transport industries. Bricker becomes third in committee seniority with the Republican majority, which also elevates Sen. Charles W. Tobey (R., N. H.) to committee chairmanship.

In the last session of the 82d Congress, Sen. Bricker was a co-sponsor of each of two basic user-charge bills introduced, one of which was for highways and the other for inland waterways. The highway bill (S. 2365) was introduced by Senate Commerce Committee chairman Edward C. Johnson (D., Colo.) for himself and for Sen. Bricker. It called for a study of the distribution of highway taxes.

The other bill (S. 2743), on inland waterways, was introduced jointly by Senators Bricker, Homer E. Capehart (R., Ind.), and Herbert R. O'Connor (D., Md.). This bill laid out the rudiments of a system for waterways user charges and directed the Interstate Commerce Commission to hold hearings and set up a scheme of user charges, including penalties for nonpayment. Neither bill was ever reported out of committee.

• **Charles F. Horne,** Civil Aeronautics Administrator, who holds the basic document covering Government policy on airway user charges. This is a CAA report prepared in late 1949 at the request of the Budget Bureau. The report is titled, "A Program of User Charges for the Federal Airways System."

Although it has not been revised

since February, 1950, the report is still administratively restricted. The Budget Bureau is reported to ask CAA for further action periodically. The desired action is apparently forthcoming, but in response to prodding from another direction. Horne, on direct orders from Jack Garrett Scott, has his staff actively re-working the CAA user-charge study.

• **Brig. Gen. Milton W. Arnold,** vice president-operations and engineering of the Air Transport Association, who has been the spokesman for the air transport industry in his additional capacity as chairman of an ATA Committee on User Charges. This committee, which also includes representatives from Aeronautical Radio, Inc., American Airlines, Capital Airlines, Chicago and Southern, Pan American, Trans World, and United Air Lines, was established and charged by the board of directors of ATA with the direction of a user-charge study.

An ATA staff-written report was compiled from such a study, which was completed in early October, but Arnold has refused to comment on its contents or state what ATA's position is on the subject. The committee last met in late November and is reported to have prepared a list of recommendations in regard to possible user charges for the Federal airways, which are to be presented to ATA's board of directors at their December 9 meeting for a policy decision.

• **Dr. Reginald V. Hobbad,** Rutgers University professor of transportation, who was called in by ATA to conduct its user-charge study with the assistance of Ralph Rechel and Seth Preece, two ATA staff members. Originally projected as a six months study, it actually was well over 10 months before the report was completed.

The rush for completion, abandoned in mid-year when it became apparent that no legislative action on airway user charges would be undertaken during the final session of the last Congress, arose from the fact that in 1951 the airlines rang up a record year financially—net profit estimated at $50 million.

The poor financial condition of the airlines had long been the major obstacle to an earlier application of user charges. Now, however, the airlines have enjoyed two good years in a row and for a majority of the major trunk airlines the element of mail pay subsidy has been eliminated. The latter was effected when the Civil Aeronautics Board put those carriers on permanent service mail rates.

Sources within the industry make the flat claim that the airlines have positively shifted from a negative attitude to a willingness to go along with a national policy on user charges for public aids. There is one drawback to their complete capitulation to user charges though, and that is the looming threat of an attempt to separate airway user charges from allied charges for other segments of the transportation industry. If that should be a development, not only the air transport industry but CAA can be expected to fight any and all such attempts at separation.

Any effort to single out aviation rather than considering all types of transportation in a broad coordinated program or a legislative "package" will see a resurgence of the resistance to user charges which has virtually disappeared.

Considering that a universal policy of assessing user charges is in the offing, the airline industry is concerned with the establishment of an equitable basis for computing and applying these charges. Viewed as a costing problem, the computation of charges can, therefore, only be arrived at through the means of "selecting a reasonable arbitrary method."

The ATA report presumably sought to develop alternate ways of how to arrive at a reasonable and workable charge. The simplest method determined would be to assess a nominal charge. One suggestion put forth has been to "stop the clock" on free use of Federal facilities on principle, even if no more than a token fee is collected. Though it may be only a payment within the ability to pay, it gives an indication of intent to adjust to the full economic burden of government-provided aids eventually.

Another method would be to allocate costs as based upon relative use of these facilities. Here, however, the problem arises of how to measure relative use. Taking the necessary characteristics of a measure to be (1) a test of homogeneity, (2) work-load and costs, and (3) availability for all, the following methods for basing airway user charges become available as meeting all three requirements:

Fix postings.
Landings and take-offs.
Gross revenue tax.
Tax on revenue miles flown.
Gasoline tax.
Aircraft registration fee.

Other factors to be considered in arriving at an equitable method for basing charges are the value of the service; the ability to pay; and what the traffic will bear.

PIPER TWIN-STINSON, shown in flight with one prop feathered.

More Power for New Piper Models

The Piper Twin-Stinson has undergone several major changes: its engines have been boosted from Lycoming 135 hp to 150 hp, the twin-tail design has given way to a large single fin and rudder, and the structure is to be all-metal, instead of the anticipated part fabric. In addition, Hartzell full-feathering propellers will be installed in the near future. Piper anticipates beginning actual deliveries in mid-1953.

Company officials assured those attending the 14th annual Piper Distributor Meeting, held in Lock Haven, Pa., that the plane will be brought in at under $25,000, despite the more powerful engines and other changes. It also is quite likely that other Piper models will eventually be equipped with the 150 hp engines in keeping with the company's policy of standardizing engines in all of its aircraft.

The 1953 Tri-Pacer 135 and Pacer 135 feature the following changes:

• **Usable cabin space** increased 18%.

• **Baggage space** upped from 6 cu. ft. to 12.5 cu. ft.

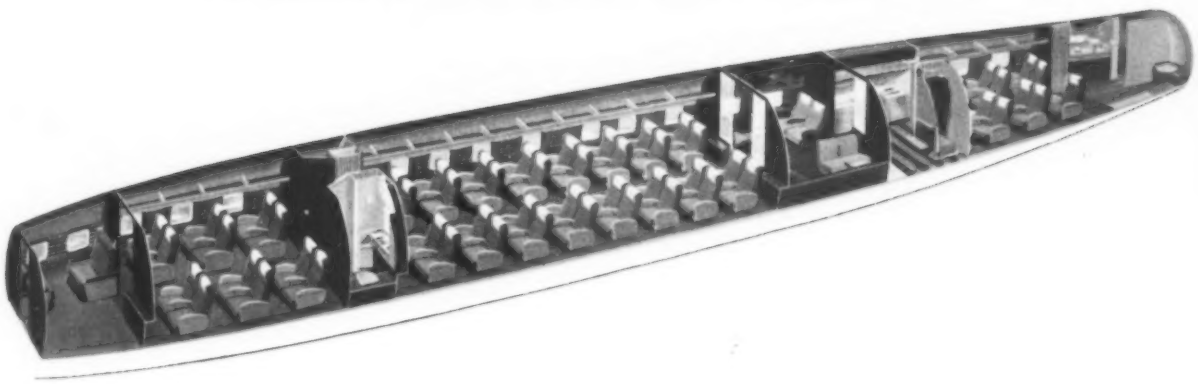
• **Cabin noise** reduced about 20%.

• **New 135-hp** engines boost Pacer cruising speed at 7,000 ft. to 134 mph and Tri-Pacer to more than 132 mph.

• **Large access doors** in the belly of the fuselage aft ease maintenance.

In an effort to meet civilian demands, Piper plans to boost its production by at least 300 planes over the three previous years' 1,100 and less. The production schedule calls for three planes a day in January, 4.5 per day in February, seven per day in March, and a maximum peak of eight planes a day in April, to be continued at this rate as long as forecasts warrant.

Inside Next Year's CONSTELLATIONS



for a report in full color on the $1,500,000 interior of the latest Super Connie, see the next three pages

Space spells luxury in designer Henry Dreyfuss' lexicon. He faired off the new Super Constellation to make a flat surface, removed the step in the floor of earlier planes, and sloped the aisle gently downward toward the front of the plane. Subdued yet adequate illumination has been integrated with calm yet cheerful colors.

By FRED S. HUNTER

A NEW AND EXCITING look in airplane interiors is a part of Lockheed Aircraft Corp.'s modernization of its new-type Super Constellations, the Models 1049C and 1049E, which start coming off the assembly line after the first of the year.

There has been a complete transformation of the cabin, to go along with the improved performance, increased weights, and better operating economies which are to be attained through the use of Wright Aeronautical's turbo-compound engines.

Lockheed feels that in combination with the new power the new interior will help prolong the Super Constellation's life for another 10 years and give the company a saleable item through 1955.

"It has that comfort-of-home look instead of the old street-car style," says Hall L. Hibbard, vice president of engineering, who supervised the two-year project to develop a more appealing interior for the corridor-like fuselage of the Super Constellation, which is 18.4 feet longer than the previous model.

In Burbank, the new interior is commonly referred to as the Dreyfuss interior, named after Henry Dreyfuss, the industrial designer world-famed for his forward thinking on utilization and luxury in steamships, hotels, and trains. Dreyfuss was commissioned to join Lockheed's transport design staff in working out an interior configuration incorporating highly practical luxury keyed to safety, producibility, and economical operation.

Some of the Dreyfuss features:

Rich woods—fine paintings in a plush lounge—real leather sofas—grandfather chair seats—concealed galley—glare-proof windows—flat ceiling—covered "mechanics"—four lavatories—diffused lighting—fingertip-touch curtains—numerous compartments—heavy, thick-textured fabrics—rounded corners and smooth lines.

Any misgivings Lockheed may have had about getting its money's worth in its $1,500,000 investment in a new interior were quickly dispelled when the customers got a gander at the mockup the designers built at a cost of approximately $250,000. It has engendered nothing but praise.

In the Dreyfuss interior, a passenger boarding a Super Constellation will immediately encounter a subtlety of design, although it is highly doubtful he will realize it. Doorway carpet stripes guide the passenger in. They also make the plane look wider. Simple touches like this prevail throughout.

The main door, incidentally, has been located farther forward than in earlier Constellations to fit into the compartmentation, which characterizes the new-style Supers, and to make the best functional use of otherwise non-revenue space. By strategically placing passenger and cargo entrance doors and the lavatories, Lockheed reports it has divided the luxury version into five separate compartments, and even the maximum density tourist version into three, without loss of revenue space.

Compartments break up the tube-like shape of the Super Constellation's 76½-foot-long cabin (from rear bulkhead of relief-crew quarters to rear of aft lavatories). Moreover, compartmentation helps baffle normal noise and this, with new acoustic materials in cabin walls, contributes to quieter flying.

But most important, Dreyfuss says, is the fact that the passenger who can walk into another room automatically feels freer and less confined. And compartments make an airplane look stronger.

This is characteristic of the Deyfuss design throughout. The colorings, the materials, the furnishings, the lines of design all help to give a stronger, sturdier, safer appearance.

Dreyfuss has located the lounge,

First view of boarding passenger in new Lockheed Super Constellation interior. The plane's interior is divided into several separate cabins, five for intercontinental routes, six for domestic. Compartmentation provides variety and relieves monotony, says Dreyfuss.

Rounded corners everywhere possible and unbroken sweeps of material are employed. Window curtains are gathered in folds that fill the entire space between windows, integrating them with rest of interior.

Simple change of furniture provides a new passenger area in the Super Constellation lounge. Here, facing seats and a removable table have been installed. The lounge provides a contrasting color scheme with brown leather and fabric seats, blue curtains and walls. The lounge can become a private compartment through the use of curtains hung from ceiling tracts to close off either side.

Art helps make a journey more pleasant, says designer Henry Dreyfuss. Accordingly one of America's leading painters, Richard Haines, was commissioned to do the murals on the sidewalls of the new Lockheed Super Constellation's lounge. An Atlas-type map of the world utilizes ingenious symbols and pictures to identify various areas and countries.

Seats in the new Lockheed Super Constellations are the Siesta type, except in the lounge: full foam rubber construction on aluminum frame, upholstered in 13-ounce nylon-and-wool fabric. Normal recline is 38° and they can be reclined to 68° in the full-luxury configuration.

not in the tail, but just inside the entry vestibule. A valuable psychological factor is the bright and cheerful picture it gives to the boarding passenger.

Here, too, Dreyfuss seizes the opportunity for a conspicuous display of art. One of the industrial designer's discoveries about the tastes of travelers throughout the world is that art helps make a journey more pleasant.

Richard Haines, one of America's leading painters, created the murals. Emil Norman, creator of hand-fashioned etchings in cellulose acetate, produced the glass-like etched laminates which are inset in the black walnut bulkheads between cabins.

Ranking along with the separate compartments and the decorative lounge in bringing about a complete change in the Super Constellation interior are the ceiling lines.

You'll be able to smoke a cigar any place in the new Super Constellation, says Hall Hibbard. It takes a lot more ducting to provide the 225 pounds of air per minute required to achieve that kind of fresh-air ventilation. Only practical location for so much new ducting was the ceiling.

Dreyfuss consequently faired off the ceiling, making a flat surface of what previously was a "street car-type" suspension panel of lights and wiring and ducts. In beautifying the ceiling, he actually gained headroom. What's more, the flat ceiling swings right into the rugged but comfortable impression conveyed by the new design.

Windows are enlarged 16⅛" by 18⅛" panorama type providing 85% more view space than the porthole windows of earlier Constellations. The double panes have been tinted blue-green.

An outstanding point in the Super Constellation decor is the lighting. Main illumination comes from 18-inch square lights set flush in the mid-ceiling 24 inches apart. Custom-made shields, hand-tooled from translucent Lumarith, a rich-looking plastic resembling rare glass, diffuses the illumination from clear glass bulbs on the plane's 28-volt system.

Basic configuration of the new-type Super Constellation, for pricing and specification purposes, is for 59 passengers (plus the lounge) for overseas operation, and 65 for domestic.

Four lavatories are provided on the new Super Constellations, two located in the tail, two between the main and forward cabins. Photo shows one of the aft lavatories, a two-room chamber in which a door separates washroom from toilet.

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Interview

with

Thomas G. Lanphier, Jr.

Vice President and
Asst. to President
Consolidated Vultee Aircraft Corp.

✦

The Industry and National Defense

✦ ✦ ✦

Thomas G. Lanphier, Jr., vice president and assistant to the president of Consolidated Vultee Aircraft Corporation at 37, is a former newspaper man and government official, having joined Convair in May, 1951, as assistant to the president. He became vice president in November, 1951.

Lanphier, as the son of the commander of the First Pursuit Group at Selfridge Field, learned to fly at the age of 14 in Army trainers. He joined the Air Force in 1941 and served as a fighter pilot in the South Pacific, flying more than 100 combat missions. He was credited with seven Jap planes and destroyed 10 more on the ground. He is the recipient of the Navy Cross, Silver Star and cluster, Flying Cross and cluster, and Air Medal. He holds a colonel's commission in the USAF Reserve. He is a past president, chairman of the board, and chairman of the Executive Committee of the Air Force Association.

He became managing editor of the *Idaho Daily Statesman,* Boise, in 1945, and is a member of the American Society of Newspaper Editors and Sigma Delta Chi, national professional journalistic society.

For a six months period in 1949-1950, Lanphier was special assistant for research and development to the Secretary of the Air Force and in 1950 was appointed to the Air Force Scientific Advisory Board. Just prior to joining Consolidated Vultee, he was special assistant to W. Stuart Symington, chairman of the National Security Resources Board, and he represented Symington on the National Security Council Senior Staff.

Q. What is the scope of the recently created post of vice president of planning at Convair?

A. General Joe McNarney, president of Convair, set up this planning office last spring as his means of taking as coordinated and well-advised a long range look into Convair's future as the experience, intelligence and vision of all the elements of the company combined could provide.

He believes this is essential to the establishment of corporate stability in an industry historically known for its instability. Particularly in this atomic era of complicated weapons systems, when longer and longer range decisions are being pressed upon the military services and their contractors.

Since 90% of Convair's efforts are involved in developing and producing aircraft and missiles for the air force and the Navy, it is both good business and in the national interest that Convair plan years ahead to develop and produce articles for these military services in order that they arrive in the customers' hands in time to be better than the weapons the aggressor might employ against us three, or five, or ten years from now.

In general, it is the mission of Convair's long range planning office to coordinate the considerable planning that is continually being done throughout the many elements of the corporation, to act as collection point and clearing house for the company as to what the future requirements of both commercial and military customers may be, to match proposed corporate commitments with corporate capabilities and policies and to propose, for General McNarney's consideration, the likeliest direction he should give our several divisions in terms of new products they should pursue, or major variations they should undertake on existing products.

Q. How does Convair's long range planning office actually carry out its mission?

A. Well, the planning of an outfit of this size is the sum of a lot of people's continuing thought and effort. It is the planning office's job to integrate that thought and effort and, on behalf of the president, to give it direction.

To that end, we aim the corporation's efforts toward certain stabilizing products we would like to build. We start, of course, from the base of things we are building now. Our current development and production is being carried on in four operating divisions—two in California and two in Texas. These divisions are producing aircraft and missiles for the Air Force and the Navy. Here at San Diego we are also building commercial Convair-Liners for 29 customer airlines, in addition to our military work.

Each division has its own area of product responsibility. Not only is the division manager responsible for the current status of his already contracted development and production programs, but he is also responsible for planning toward new business, either military or commercial, within the areas of his assigned product responsibility.

Each division has planners in its own product field, has engineers studying new materials and methods, as well as new products, and each has an operations analysis section which contemplates and tries to anticipate weapons systems developments or commercial market developments in its specialized field of experience.

Q. Would you cite an example of this?

A. Take our Fort Worth division, which is an Air

Force-owned facility at which we currently build the B-36 strategic bomber.

The Fort Worth division's assigned area of product planning is in the field of its considerable experience, the manufacture of aerial weapons for strategic retaliation. Months ago—in fact, years ago—the Fort Worth engineers began to plan developments beyond the B-36 in terms of aircraft that would carry the atomic weapon, without fail, through whatever improving enemy defenses may one day be capable of turning back the B-36.

Meanwhile, as our Fort Worth engineers work at keeping abreast of the ever-increasing requirements for America's strategic bombing system, our San Diego division planners worry, on an assigned and systematic basis, about developing continually improving air force and navy weapons for defense against an enemy's atomic attack, either by air or sea.

It is the planning office's job to integrate one division's planning with another. Also to coordinate the divisions' planning with the long range planning functionally done by the several staff vice presidents, such as Sparky Sebold, for engineering, Jack Naish, for commercial and military contracts, and Bob Biron, for the training and employment of manpower, and for the long range purchase of materials.

Best Advice

The final element of this office's responsibility is to throw into the planning machinery the best advice, from whatever sources we can obtain it, either inside or outside the corporation, as to what long range economic, political, and international policy factors may tend to influence our commercial markets or the future military requirements of our customers in the national defense establishment.

Q. Exercising this latter function of your office, what do you see as the trend in military requirements in the fields of Convair's interest?

A. Today, whether we like it or not, we have been forced to assume a position of international leadership among free nations of the world. Our international policy is aimed at the survival of the dwindling free world against the threat of Communism. Since World War II we have been endeavoring to contain Communism by economic measures such as the Marshall Plan, aid to Greece and Turkey, the reconstruction of Japan, etc.—and in the only military expression of containment to date, by localized resistance to Communist aggression in Korea.

Ironically, throughout the period during which "containment" has been practiced, both economically in Europe and militarily in Korea, there has been no apparent relation between this foreign policy of the United States and a large measure of the military build-up being carried on by the Defense Department of the United States. A large bulk of the weapons dollars spent by the Defense Department since World War II has been for strategic airpower—a fighting arm which the exercise of the policy of containment has to a major extent, handcuffed.

Q. Will the recent election results alter this situation?

A. Presumably the new administration, under General Eisenhower, will review all the national policies—domestic, military, and international. This review is bound to consider the prevailing contradiction between an admittedly expensive atomic striking force in being and a foreign policy which not only does not use it as a base, but has actually apologized for it from time to time.

The new administration may well consider one of two courses: either (1) discontinuing the highly expensive business of building a strategic air force for atomic retaliation against Communist aggression, and devoting a more considerable expenditure to ground forces, naval forces, and the types of tactical air force which are requisite to localized "containment" types of warfare—or (2) shifting our foreign policy over to a more affirmative one based upon the deterrent and the destructive power in which the American people have invested billions of dollars with the AEC, SAC, and the Navy.

It could logically be assumed that the new administration is likely to move toward the second course, at least to an extent not inconsistent with the vital principles inherent in our mutual assistance pacts with European and Pacific nations, since a choice really no longer lies in the hands of American policy makers. This choice was taken from us the day the Soviets exploded their first atomic bomb. Our national military strength, relative to that of the Soviet Union, has been diminishing steadily since that time. Not only in terms of retaliatory and defensive weapons we are not building, but even more effectively in terms of the steadily increasing numbers of atomic attacking weapons the Soviets are building.

Strategic Decision

We are moving inexorably toward a date, sometime in the foreseeable future, when the Soviets will have constructed that atomic striking force they consider enough to destroy our industrial system. If by that time we do not have, in being, an aerial retaliatory and defensive force sufficient to defend us against that attack, the power for a strategic decision will have passed from our hands to that of the Soviets.

Judging from statements publicly made by General Eisenhower and his Secretary of State designate John Foster Dulles, one can assume that this nation is about to adopt a more affirmative policy in contest against the Communist threat. These men certainly recognize the situation just outlined, and are bound to call for a more integrated military program aimed toward the development, by all three services, of military forces tailored toward the facts of this age of atomic weapons.

In terms of Convair's program with the Air Force and the Navy, this we would assume to mean an emphasis upon the sorts of strategic and defensive weapons we are planning or are currently producing or developing for the Air Force and the Navy.

Q. What effect would this have on our aircraft procurement program?

A. It wouldn't necessarily mean that the three services would spend more money for aircraft or missiles, but it could certainly mean that the Defense Department's procurement of airpower, stemming as it then would from a

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national policy base, would be expressed to the industry with more cohesion and direction than is now the case. And therefore, with less waste of dollars, and even more important, less waste of available talent for the development of the aircraft and missiles so essential to the timely establishment of such airpower in being as is necessary to meet the requirements of national security.

Since the end of World War II, the initiation of aircraft development and production has stemmed largely from within the military services, with a minimum of policy direction from the executive side of the government. The services have had to spend much of their time and effort convincing the executive side of the government of the need for airpower—efforts which were not always successful. Meanwhile the services have been left to compete with each other, and thus strain the use of an already limited number of American dollars and talents and materials for the airpower build-up.

The greatest need of the industry, if it is to become the stabilized and economic operation it can be in behalf of the national defense, is for decisive direction from its customer, the Defense Department, as to what it wants and when it needs it in terms of aerial weapons systems.

Q. The year 1956 appears to be a magic year in defense planning. Do you think that this nation will be in its strongest position by that time?

A. No. I believe we are stronger today than we will be in 1956, assuming no greater air power build-up than is now planned in the interim.

I base my belief on factors that are publicly well known. They include the fact that the Soviets exploded and have subsequently been working on the manufacture of atomic bombs, that they have since World War II been producing, on a stepped-up basis, copies of our B-29 bombers, and other more modern types of long range bombers. And on the final fact that their leaders have time and again assured the world that they intend to destroy us economically and politically, if possible—and failing that, to destroy us by force.

Growing Weaker

In light of these facts then, particularly when considered against the context of the sort of military forces we are building in extension of the "containment" policy, and most recently in reaction to the Korean type of fighting in which we are engaged, I believe it logical to conclude that our military strength relative to that of Soviet Russia is growing steadily weaker.

Q. Is numerical strength the main advantage the Russians hold?

A. As much of an airpower build-up as we are currently undertaking is by no means enough to counteract the known facts that the Soviets are building an atomic attack for possible use against this country—and that there is looming a date within the foreseeable future when they may decide they have enough to do just that. From that day on, whatever superiority in numbers of bombs and carriers we might have over the Soviets is obviated as a deterrent factor.

As to the year 1956, I do not know the magic of that particular date. It is my impression that the joint chiefs some time ago determined that 1954 might be the likeliest critical date from which time on we could estimate the Soviets might have achieved that atomic striking force they consider enough. It is also my impression that the current defense build-up was originally aimed at that date—and that subsequent slippages of one sort or another in government planning have moved the date back to 1956 as an accommodation to the planners, rather than as a change in estimation as to when this nation might begin to be in critical jeopardy. That date, so far as I have ever read in the public prints, is still 1954.

143-Wing Goal

Q. Would you say the 143-wing goal, if reached, would be a sufficient measure of protection against the Soviet atomic threat?

A. No. Nor do I understand that the services themselves claim that. The 143-wing figure, plus the naval air elements contemplated in the current defense build-up, are at best proposed as a minimum force. A minimum force from which we are supposed to be able to form a springboard for mobilization in the event of a full war. The efficacy of this minimum force is based upon certain assumptions, not all of which may be valid.

For instance, the basic assumption that there will be the 24 to 36 months period of grace—which would be required to step up production from any date of go-ahead following the initiation of an all-out war upon us by the Soviets—is an incomprehensible evasion of the facts of life and death in this atomic age. Come the day of an atomic attack, we may find it has knocked the spring out of our springboard.

Strategic Decision

If and when the Soviets should attack us with that atomic force they consider enough to shatter our industrial complex and as much of our retaliatory force as they can surprise, the subsequent exchange of atomic blows between their contesting forces in being and ours will have certainly rendered the strategic decision, one way or another, in the opening weeks of the war. What Mr. Churchill has called "The broken-back phase" of the war, while it may run on for several years, is hardly likely to be a period in which we find ourselves mounting the sort of World War II response we eventually produced against Germany and Japan. This particularly when you consider the unlikelihood of our being able to reach, the next time, a number of the far countries upon which we have and must continue to rely for critical war materials.

This because they may have been either overrun by Communist aggression now poised to do so—or may have become relatively inaccessible to our surface shipping as a result of the submarine blockade towards which Stalin has apparently been very actively aiming.

Q. Couldn't such sources be reached by airlift, even though our surface shipping might be reduced as a source of supply?

A. Airlift certainly could economically handle a large measure of the logistic problem in another war. However, we currently see no evidence of such planning in terms

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of large developmental programs for logistic transports of the air or for development of the systems for accelerating the bookkeeping and reducing the terminal transit time which are the current major barriers to economical shipment of freight by air. About the only formal effort in this direction of which we have heard is the Harvard study, sponsored by the Air Force.

The military establishment provides the logical avenue of development of jet and turbo-jet transports which might compete with the currently highly advertised British competition. This is a valid expenditure of the American taxpayer's dollar in that, by the development of an aerial transport system toward more economical shipment of much of the stuff of war, the military services on the one hand reduce by a considerable measure the amount of stuff they have to move abroad, and at the same time establish the systematic basis for eventual low cost commercial aerial movement of freight and passengers.

Air Fleet Obsolete?

Q. In regard to fleets of the air, there is considerable concern that we are planning and building an obsolete or obsolescent Air Force. Is this true?

A. I could only answer that question from Convair's limited point of view. A large measure of the obsolescence of our strategic force and of our air defense is determined by the quality of the Soviet air defense and strategic offensive capabilities, factors which only the military services can evaluate. The military services cannot, of course, read contractors like Convair in on their plans, nor confide in us the intelligence information upon which they are based.

Based upon what we do know, or can surmise, I would not say the B-36, for instance, is an obsolete aircraft. Certainly, it has a long and useful life ahead of it, even beyond that period when the enemy defenses might render it no longer effective as an intercontinental bomber. There are enough alternate uses now being contemplated for it beyond that date to thoroughly justify the investment the American taxpayer has made in the B-36.

Q. How about the state of the art in air defense weapons?

A. It isn't so much a case of the weapons we are building being obsolete as it is that the state of the art defensively just isn't good enough to intercept an atomic force, should the enemy launch one against us. General Vandenberg has stated that the Air Force aims, at the peak of its 143-group program, toward a 30 percent effective defense against any given enemy attack. The disturbing side of this coin is not the 30 percent we might shoot down in 1956—it is rather the 70 percent that would get through to drop whatever number of atomic bombs they may bear. Of course, over on their side of the Iron Curtain, the Soviets would have just as tough, or tougher, a time of defending against our retaliatory bombers.

Q. When B-36 production is curtailed in 1954, as it has long been scheduled to do, what will Convair do with its production capacity?

A. Convair will have certain follow-on developmental and eventual production programs in addition to the considerable modification program on the B-36. We have for many months been proposing various follow-on programs to the Air Force, out of which enough have or will be contracted to keep our engineering complex continually employed, and to keep a large measure of our production organization active.

Expensive Process

Q. It appears that most military aircraft undergo a series of continual modifications during their service lives. Is this a very expensive process?

A. It is growing more and more so. In fact it is becoming apparent that the maintenance and modification costs, particularly of the large bombers, are approaching a magnitude similar to that the Navy has long experienced with its capital ships, wherein the maintenance and modification costs for large vessels have historically amounted to roughly the original cost of the ship.

Q. Does our present defense planning realistically project these maintenance and modification costs so that they will not be expected to come out of annual procurement funds for newer aircraft?

A. It is my impression that the Air Force is having to spend procurement dollars it might otherwise have spent for new aircraft in the modification and modernization of aircraft already in the force in being. The constant improvement of the force in being through modification and modernization is a desirable and economical approach to getting better weapons sooner. But certainly, wherever the budget would permit, modernization and modification ought not to be done at the expense of developmental strides toward better aircraft.

Perhaps a reason why these modernization costs overtook the service is that this is the first time in the Air Force's brief history that such action has been required. Previously bombers and fighters went into combat service as soon as they were completed in any number. Today we are building an air fleet which may not see active service for many years, if ever. This calls for the large modernization expenditures, plus the routine overhaul and repair costs for the fleet of "peacetime" aircraft.

Future Fighter Pilot

Q. What do you feel is the future of piloted fighter aircraft?

A. There is a considerable future, in point of time, for the piloted fighter aircraft. While Convair and other defense contractors are working on missile programs that will supplement the fighter defenses of the nation, the human element will still, for some time to come, be a requisite in the air superiority and in the aerial defense system.

The air defense pilot will have to deal with a far more complicated system than does the current fighter pilot, of course, since his mission of defending against atomic attack is an absolute one. When he goes out to intercept a bomber carrying the death of an American city, he has to have all the help that science can give him to find his target, whether it be day or night, rain or shine. Hence the require-

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ments for so many of the intricate systems and "gadgets" which tend to complicate and delay the production of fighters for defense against atomic attack.

Q. Is this equally true of the piloted bomber?

A. I would say that the useful life of the piloted bomber will be even longer than that of the piloted fighter aircraft. The element of guidance is the toughest of all to lick in the development of long range offensive missiles. And therefore the pilot who currently affords this navigation and target-finding elements will be a requisite for a number of years to come. Also, the military services have been historically indisposed to substitute a brand new weapon completely for a weapon with which they have already had combat experience. It would not be valid to assume that civilian and military leaders who have the responsibility for strategic retaliation would or could rightfully place more than partial reliance on some weapon other than the piloted strategic bomber, in the use of which America enjoys acknowledged supremacy throughout the world.

Fighter Complexity

Q. What is Convair's attitude on the growing complaint that this country is building its fighters too heavy and complex?

A. I should think the practical answer to that question can only be made after a finer definition of what kind of fighters you are talking about. If you mean interceptor fighters which have the mission of defending against atomic bombers, then I should think no one would argue against whatever complexities of systems are required to help the fighter find and destroy the attacking target.

If you are talking about air superiority fighters, which are quite another matter, then I suppose the question answers itself. If you have enough money for both types, then by all means an air superiority fighter which might be lighter and less complicated than some of the aircraft now contemplated for the interceptor mission is a desirable thing to buy.

However, short as it is of dollars at the moment, one gets the impression that the Air Force is logically giving priority to the heavier and more complex interceptors because of the greater eventual urgency of their mission.

Q. Shifting to Convair's commercial programs, do you have a successor in mind for the 340?

A. As a policy Convair is seriously looking for a successor. As an example, a 56-passenger coach version could be deemed a successor and we intend to pursue the turboprop possibilities as a natural successor.

Turboprop Problems

Q. What does Convair see as the biggest problem in the turboprop field?

A. The economic problem is the most serious one. Until the engine can compete from a dollar efficiency standpoint it is unattractive to commercial airlines. There are also technical problems of certification and reliability which are plaguing the American manufacturer of turbine engines. The British have not encountered as many problems because of their dependence on manual rather than electronic control.

Q. Has the Convair-Allison project proved the merit of producing turboprop transports?

A. The Convair-Allison project has proven useful in giving empirical information about the assets and liabilities of the turboprop problem. It should be remembered that the Convair-Allison airplane is only an engine test bed installation. The structure is not designed to permit the ultimate speed ranges of turboprop.

Q. How much time does Convair have on turbo-engines?

A. About 200 hours in the air. Our XP-81 fighter had about 50 hours with the TG-100 through 1947. The P5Y flying boat has about 70 hours of flight time and 1,500 hours engine time on the ground. The Allison Turboliner now has over 150 hours flight time, about 12 of which were put on by Convair before delivery.

Q. Do you see a twin-engine jet transport as practical?

A. No, we don't see a twin-engine jet transport as practical, particularly for short range operations. Apart from the operational difficulties with the short fields normally encountered in twin-engine operation, the basic economics of jets would fare poorly in a comparison with reciprocating engine economics for short range operation.

Q. Does Convair have any thoughts on the corporation aircraft market?

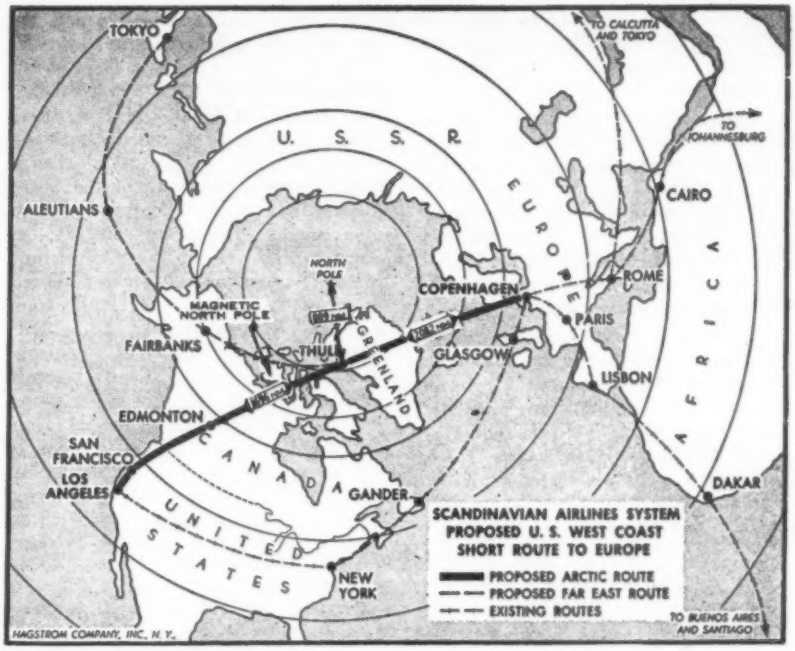
A. Jack Naish, our sales vice president, believes there is a large market in corporation aircraft which has not been particularly exploited. He sees two reasons for this lack of exploitation. Firstly, the hidden cost factors in making individual airplanes, tailored to individual specifications, make the cost estimate of this type of airplane almost impossible to ascertain accurately. Secondly, the present backlog of orders for airline purchase has been sufficiently far ahead to preclude further investigation.

Studying Ways

However, Convair is definitely interested in this market and is studying ways and means of eliminating these problems. A possible solution would be the manufacture of a quantity of airplanes on a semi-completed uniform basis for "off the shelf" sale, in which the individual interiors, etc., would be accomplished as a modification, probably by one of the smaller companies specializing in this type of work.

Q. Is there much opportunity for additional mechanization of production of aircraft, thus cutting down the cost?

A. The degree of mechanization possible is directly dependent on the total number of aircraft built, since the cost of such mechanization must be amortized over the total order. World War II experience proved that given enough airplanes in a total order, the degree of mechanization and the resultant cutting down of costs is extensive. However since the progress in atomic weapons systems is toward fewer and more complex aircraft, the trend would seem to be away from rather than toward additional mechanization.



Over the Pole to Denmark: 'Routine'

Publisher finds first commercial flight over polar regions to Copenhagen is history run on schedule.

By Wayne W. Parrish

THE FIRST commercial airplane flight from California to Europe by the far northern "over the top" route proved to be nothing more than a routine airline operation. Historic as the flight was in air transport and aviation history, it wasn't an "adventure"—it was a practical demonstration of the feasibility of the polar areas for short-cut airline routes.

I was privileged to be one of 24 guests and officials of Scandinavian Airlines System aboard the Arild Viking, a Douglas DC-6B, on the first flight which left Los Angeles at 8:30 a.m. PST on November 19 and arrived in Copenhagen, Denmark, at 10 p.m. Central European Time, November 20. Flying time for the 6,290-mile route was 24½ hours and elapsed time was 28½ hours.

There were just two stops, one at Edmonton, Canada, and the other at the big new USAF air base at Thule in the northwestern part of Greenland, 809 miles from the North Pole.

Ten years ago such a flight would have either been impossible or would have been a major exploration. A report on the pioneering SAS flight might well be entitled "How I ate and drank my way over the polar regions to Europe." It was a combination of Queen Mary luxury and perfect comfort, a smooth on-schedule operation over the vast ice and snow wastes at the top of the globe. It was a thrill, but it was also "routine."

In fact we had to idle away time on the last leg of the route. We could have arrived in Copenhagen almost an hour ahead of schedule but because of the arrival formalities and huge crowd at Copenhagen's Kastrup Airport we had to slow down in order not to upset arrangements.

Routine Hop

The first leg of the flight to Edmonton was a routine seven-hour hop. We were greeted in the Canadian oil-boom city by local and provincial officials and given a reception during the two-hour stop. Among those on hand was Canadian air veteran Leigh Brintnell, who is now in the oil business and who pioneered flying in the far north. The second seven-hour hour leg to Thule was in total darkness. Beneath but unseen was that vast area of ice and wasteland which constitutes northern Canada. We passed within 150 miles of the North Magnetic Pole but no signs of habitation were seen after we left the Edmonton area until we came over the 90,000-acre USAF air base at Thule. Here in this far northern outpost was a well-lighted, self-contained city with a 10,000-foot runway, the creation of Col. Bernt Balchen, USAF, who was on board our flight.

Thule is a truly remarkable achievement, a monument to the foresight and knowledge and planning of a great American, and a vital key in America's defense system. Last year some Congressmen began criticizing the expenditures that went into the Thule base. They clammed up tight after they had seen it.

No one can visit Thule and learn of the vast construction undertaking which it involves without being completely impressed and also very proud. Time will prove what America owes to Bernt Balchen. It was fitting that he should be on the first commercial flight to pass through the base.

It was cold on Greenland but not as cold as I had expected it to be. They said it was about three degrees above zero Fahrenheit. There was snow on the ground but Thule doesn't get heavy snowfalls. Most of what it gets blows off the huge Greenland ice cap, which starts only seven miles from the air base. Winds keep the runways cleared.

Thule is a contact operation 95% of the year. It is closed very infrequently and then only by fog in the summer time.

There are no luxuries at Thule, but there is typical American efficiency and comfort. The prefab buildings, especially constructed for the far north, are comfortable but not elaborate. The base is supplied by sea during the summer—the port was open this year until the end of September—and then MATS takes over the rest of the year.

Totally Dark

We arrived at 4 a.m. local time and 9 a.m. Greenwich Mean Time. It was dark, of course. It is totally dark all winter long. If the boys want to know the time they have to look at a clock or go by their stomachs.

It isn't exactly a paradise and those who aren't used to it would like to see the sun once in a while, but Thule is a big institution and there is a fair amount of social activity to keep everybody occupied. There is a Danish officer on the base—the Danes own Greenland—and there is a small settlement of Eskimos and Danes not far from the base.

After a typical air base breakfast, and a brief reception in the home of the Danish commander, we took off again on the last hop. It was scheduled for ten hours but we picked up a lot of time flying over the Greenland ice cap.

It was too dark to see anything and most of us took the occasion to sleep, until we neared the eastern coast of the huge island. By that time it was getting light and we had a superb view of the ice and snow and stone outcroppings which make up the rugged

eastern coastline. It was twilight but just enough to provide beautiful colors of grey and white. There is an awesome beauty about the far north country but it is an inhospitable, bleak, and treacherous area.

It was a mighty short day as we progressed eastward and southward. The sun never came above the horizon, but there were magnificent reds, magenta, and even a little orange which heralded a sunrise that never came. We were much too far north to see the sun, although during the summertime the sun would never set in that area. For about three hours at the most we had this twilight period and then it got dark again for the remainder of the flight to Copenhagen.

On the way across the Arctic, while it was still barely light, we crossed over and circled Jan Mayen Island, possession of Norway, a bleak bit of land sticking out in snowy loneliness in the far north. There is a weather station on the island and the Norwegian attendants radioed their greetings to us. A rugged snowy peak sticks up over 7,000 feet. There is no airfield, although one has been considered.

Speaking about radio greetings, this was a remarkable flight in more ways than one. The attention of the world seemed to be focussed on it. Greetings were being radioed from isolated weather stations all over the polar region and from many points "down south" in North America and Europe.

Close Touch

As we neared the Norwegian coast the radio stations of Scandinavia and the Continent were keeping in close touch with our flight and Hjalmer Riiser-Larsen, general manager of the Norwegian division of SAS, broadcast over the Norwegian radio network from our plane. I doubt if any such flight in history had been in contact with so many stations in so many areas. It was like a flight from New York to Chicago in that respect.

We had no Aurora Borealis, or northern lights, which interfere with communications, but I learned something new about this electrical phenomena. The main northern light area stretches in a band from Alaska through Southern Greenland and on into northern Europe. Once you are north of the band, you are entirely free of electrical interference.

Thule, for example, never, or at least rarely, sees the northern lights. The trouble area is the one actually being flown most across the Atlantic. The northern route which we flew is trouble-free except during the brief time you pass through the band of northern lights when they appear. This is a good argument for flying the far northern routes.

Navigation on our flight was an interesting feature. Up to 60° North, the usual Mercator Projection Chart was used for navigation and plotting. North of this parallel the Lambert Conformal Conic Region Charts were utilized. Maps were made available by the USAF, and SAS through its own polar studies has worked up its own handbook.

Above 65° North, grid navigation commenced. Due to the convergence of the meridians in polar areas, the meridians and the parallels have been replaced by a transverse grid net overprinted on the Polar Navigation Charts. Grid North is in the direction of true north from Greenwich and thence along the 180° meridian.

Special Gyro

On our trip we had the use of a special low precession gyro developed and made available to SAS by Bendix Pioneer Division. Within 600 statute miles of the North Magnetic Pole the horizontal component of the earth's magnetic field is very weak and the magnetic variation, which in that area is inaccurately charted, reaches values as high as 180°.

The magnetic compass cannot, of course, be used for steering. But the new Bendix precession gyro took over in fine style and was used for steering and for controlling the rudder channel of the automatic pilot of the airplane.

Another means of gyro steering was available through a tie-in of the gyrosyn compass gyro, standard equipment on the DC-6B, to the autopilot rudder channel, which is normally controlled by the flux gate compass. Steering by gyro, the rate of precession will be charted frequently by astro compass readings and a gyro graph was kept to give a pictorial record of the change of heading. A USAF navigator, Capt. James F. A. O'Shea, was an adviser on our flight.

Crew and Passengers

Heading the crew was Capt. Povl Jensen. Others were: Capt. Sven Gibson, Capt. Alfred Greve Frandson, Binar S. Pederson and Bjarne Heiborg-Anderson, navigators; Torsten Forsberg and Knud Turk, radio operators; Ebbe Ernstgard and Werner Johan Wamsler, flight engineers; Sten Lyholm, SAS electronics engineer; and Frede Jacobsen and Per Inset, pursers.

Passengers included Mrs. Balchen and Maj. Gen. Gordon P. Saville, USAF (Ret.), who had much to do with approving the Thule air base project. Others were: Col. Milton Turner, adviser on civil aviation to the Secretary of the Air Force; Fred Lee, Deputy Administrator of the CAA; Eric Nelson, Brig. Gen., USAF (Ret.); Peter Redpath, v. p.-sales of Canadair Ltd. and former exec. v. p. of SAS; George Unger-Vetlesen, chairman of the board of SAS, Inc., the New York non-operating company; Tord Angstrom, Deputy Director General of Civil Aviation, Sweden; Agnar Kofoed Hansen, Director General of Civil Aviation, Iceland; Tore Nilert, president of SAS, Inc., New York; Per M. Hansson, vice chairman of the board, SAS; Knut Hagerup-Svendsen, vice president-operations, SAS; Brun Eske, director general, Danish Greenland Dept.; Alf Heum, deputy director general of civil aviation, Norway; W. M. Morgenstierne, Norwegian Ambassador to the U. S.; Viggo J. Rasmussen, executive v. p., SAS; Hjalmer Riiser-Larsen, general manager, Norway, SAS; Gustav Teisen, director general of civil aviation, Denmark.

SAS has applied for a certificate to fly the route regularly between the west coast of the U. S. and Scandinavia. In terms of mileage, there is very little saving over the present routing via New York and Gander, in fact the saving amounts to no more than 400 to 600 miles if the starting point is Los Angeles. If the U. S. terminal is Seattle there is a very considerable saving, perhaps as much as 1,500 miles. It will probably be some time before there is a decision, since Canada, the use of the USAF facilities at Thule, and airline competitors are all involved.

Vast Savings

But it is also clear that SAS has opened up the possibility of flying a short route from Europe to the Orient via Thule and one stop in Alaska, probably Anchorage. Such a route offers vast savings in mileage and flying time over the present routings through India and Bangkok.

For many years after-dinner speakers have envisioned commercial air routes over the polar region. SAS has opened the way for such service and Thule, the USAF base, makes such routings possible. There are now many weather reporting stations available and even quite a few emergency landing fields. Flying weather in the polar region is notably good and often far superior to weather conditions in the lower latitudes.

The new era of commercial polar flying is finally here. It should prove popular. As a tourist attraction it is bound to be good, especially during the summertime of continual sunshine. As for the first flight—it can be summed up in just one word—routine.

News Briefs

HELICOPTERS

Operations and finances put **New York Airways** in the news. Helicopter carrier has asked CAB to waive tariff filing requirements for a proposed service carrying **diplomatic pouches** for the State Department from Idlewild to La Guardia Airports, with extension later to Newark. Current NYA service is strictly mail. "Break-even" temporary mail rates have been proposed for the line by CAB. Rates would be $2.50 per plane-mile up to 14,300 miles per month, and $1.06 after that.

MANUFACTURING

First F-86H has rolled off the line at North American on schedule and is being run through **engineering tests** on proof loading, hydraulic surge, etc., before getting its engine at Edwards AFB.

•

Light plane exports were up during October, reaching a total of 46 units, a considerable increase over the average of 28 units for the preceding nine months. October's dollar total was $520,835. Involved were Aeronca, Beech, Cessna, Piper, and Taylorcraft.

OPERATIONS

Where there was fire there was smoke over vast stretches of the United States as **forest and prairie fires** added a fairly rare hazard to airline operations late last month. Hardest hit was the area over the Appalachians from the Carolinas up to New York, where smoke reached 9,000 feet. IFR conditions were observed as far west as Chicago, and Washington National (at one time down to half-mile visibility) was crowded with flights diverted from New York City.

•

Convair 340's were in the news as **Continental Air Lines** took delivery on its first, flying it from San Diego to El Paso. **United Air Lines** was further along: a party of UAL executives was touring Nevada and California in a new Convair-Liner, christening airplanes, greeting local notables, and giving the public a look at what it will be riding in when 340 service is inaugurated. **Hawaiian Airlines** took delivery on the first of its 340's. The airplane was ferried to the Islands with the assistance of a Loran set furnished by United Air Lines and two extra fuel tanks which increased the capacity by 400 gallons.

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Will Britain Take Lead in 'Copters?

Development plan sparked by BEA's Masefield is aimed at economical 40-passenger craft by '60.

By Joseph S. Murphy

AVIATION interests in Great Britain are being asked to support a $59 million development and production program which could bring leadership in the large transport helicopter field.

But such a program will depend upon large scale government support, of which there is little evidence at this time.

Last month, Peter Masefield, chief executive of British European Airways, presented the plan in detail to the Helicopter Association of Great Britain, a plan which in three phases extends over a ten-year period and which by 1960 would present the first "economical" transport helicopter.

• **Phase one** of the plan is fulfilled by present helicopters. Although slow, complex, noisy, small and uneconomical, they are seen to provide a needed build-up of operational experience. Their small, single-engine, single-rotor design is incapable of safe operation in densely populated areas as a regular procedure, the BEA executive explained.

• **Phase two** brings into service a medium sized, multi-engine transport helicopter which will provide operating safety in populated areas but by reason of its economic limitations will fall short of the desired end. This second phase is seen as beginning with the Bristol 173 Mark III which will carry 18 passengers over a 115-mile stage distance at an operating cost of about 11 cents per seat-mile. A prototype could be delivered to BEA in late 1954 and scheduled operations could start in 1957 if a real effort is made and the proper support is available, the society was told.

• **Phase three** introduces the large, multi-engine helicopter with a capacity of at least forty passengers and a speed of 150 mph or more. In this phase Masefield sees a reduction in helicopter costs to the first acceptable level without the support of heavy subsidy. But its attainment by 1960 is entirely dependent upon meeting the 1957 schedule for the phase two Bristol 173 in order to provide several years of operating experience on the basis of which a truly commercial helicopter could be built.

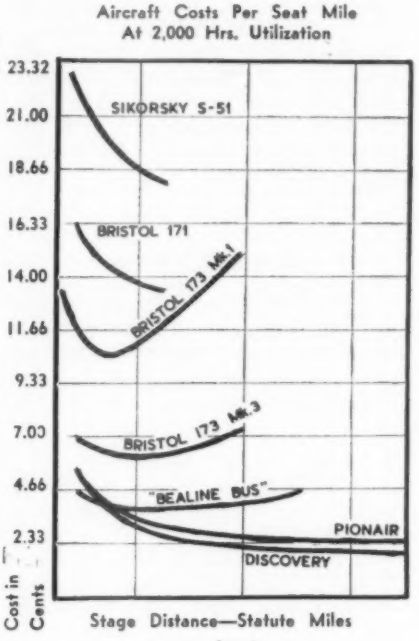
A potential phase three helicopter, commonly referred to as the "BEAline Bus" is seen as having these general characteristics:

Gross weight 48,000-50,000 lbs.
Cruising speed .....160 mph
Engines .....Turbojet (2)
Rotor diameter .....72 feet
Pass. capacity 48-64
Operating cost 4.13¢ seat-mile

Centering his 59 million dollar program around a helicopter of these proportions, Masefield offers cost details:

Prototypes (2)	**$5,600,000**
Pre-production model	**$1,120,000**
Engine development	**$4,200,000**
Ground and flight tests	**$1,680,000**
TOTAL COST up to start of production:	**$12,600,000**

Spreading these development costs over the production of some 100 aircraft at a manufacturing cost of $11.76 per pound, the airplane would sell for about $588,000, or $58,800,000 for the total production. Included in the $11.76 figure are direct materials, labor, and overhead costs of $8.40 per pound and tooling costs of about 4 million dollars.



To Masefield the financial support of the program, although necessary, will not in itself assure success. Its timing is critical from a competitive standpoint, particularly in view of competition from this country, where several types of large military helicopters are well advanced. Their advent is seen as placing the U. S. in a strong position competitively in the commercial market.

The engineering effort to be put forth is no small one, Masefield warns, comparing the task at hand to that which produced the de Havilland Comet jet transport. The biggest single problem is noise. Without a solution, the helicopter could not be operated between city centers, hence its operating advantage would be lost and its development might well be dropped.

What is this operating advantage? The 160-mph helicopter can be expected to achieve the same journey time as a 290-mph airplane for a stage distance of 600 miles. For the 250-mile flight, the equivalent of New York-to-Washington service, it can save nearly an hour's journey time.

THIS SPECIFICATION for a large helicopter, issued by British European Airways in August, 1951, is the subject of design studies now being prepared by five British manufacturers. To Peter Masefield, BEA's chief executive, it has already succeeded in its primary objective, that of stimulating thought on the requirements of a commercial transport helicopter and how to meet the requirements. The original specification included these features:

Capacity—30 passengers or 7,000 pound payload for 115-mile stage. 35-45 passengers or 10,000 pound payload for 230-mile stage.
Fuel capacity—For 230-mile stage against 46-mph headwind, with one hour holding reserve.
Cruising speed—138 mph or more at 2,000 feet.
Rate of climb—600 fpm vertically at sea level and maximum power.
Landing area—Ability to operate from 400-ft. diameter area and to make an autorotative landing over a 150 ft. screen within 150 yards.
Miscellaneous—Ability to permit indiscriminate loading.
Provision for full dual control.
Complete instrumentation for all-weather operation.
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Distribution of Fatal Accidents

According to Number of Accidents in Group
1938–1951

Maximum Group Width in Days

GROUP SIZE	14	21	28	35	42
2 Accidents	17	10	13	10	8
3 Accidents	0	4	4	3	2
4 Accidents	5	5	3	4	4
5 Accidents and over	1	3	5	6	7
Total Groups	23	22	25	23	21
Number of Accidents in Groups	59	67	83	89	93
Percent of all accidents (117 from 1938—1951)	50%	57%	71%	76%	79%
Average inter-group interval (days)	141	216	182	180	170

Monthly Distribution

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Sched. Dom. and International	14	5	7	5	5	7	5	7	2	9	8	9	83
* Irreg. Dom. and International	5	1	0	2	2	3	3	3	1	2	2	5	29
* Alaskan Carriers	1	0	0	0	0	0	0	0	1	1	1	1	5
Total	20	6	7	7	7	10	8	10	4	12	11	15	117

** No accident data prior to 1946.*

Source: Civil Aeronautics Board Resumes of U.S. Air Carrier Accidents.

According to Number of Accidents in Group

Maximum Group Width of 28 Days

Year	Dates of Group	Group Size: 2 Acc.	3 Acc.	4 Acc.	5 Acc. and over	Interval Between Groups (Days)
1938	5/24- 7/29	.....	.....	X	.....	.....
1942	5/1 - 5/12	X	.....	.....	.....	1,372
1944	11/4 -12/1	X	.....	.....	.....	1,171
1945	1/8 - 1/10	X	.....	.....	.....	38
	7/12- 8/3	X	.....	.....	.....	183
	9/7 -10/5	X	.....	.....	.....	35
1945—	12/30- 3/3	.....	.....	.....	X	86
'46	8/9 -11/13	.....	.....	.....	X	159
1946—	12/17- 1/12	.....	.....	.....	X	34
'47	5/13- 7/13	.....	.....	.....	X	138
	10/24-10/26	X	.....	.....	.....	103
	11/27-11/30	X	.....	.....	.....	32
1948	1/7 - 2/7	.....	.....	X	.....	38
1948—	12/28- 1/20	.....	X	.....	.....	324
'49	4/6 - 4/19	X	.....	.....	.....	76
	7/12- 8/15	.....	.....	X	.....	82
	11/1 -12/12	.....	.....	.....	X	78
1950	2/11- 3/7	X	.....	.....	.....	61
	6/5 - 6/29	.....	X	.....	.....	90
	8/31- 9/4	X	.....	.....	.....	63
	10/10-12/1	.....	X	.....	.....	36
1951	1/14- 1/16	X	.....	.....	.....	44
	4/6 - 4/28	.....	X	.....	.....	80
	6/22- 6/30	X	.....	.....	.....	55
	12/16-12/29	X	.....	.....	.....	169
	TOTALS	13	4	3	5	4,547 Days
	Total Groups					25
	Number of accidents in groups					83
	Percent of all accidents (117)					71%
	Average inter-group interval (4,547÷24)					182 Days

Flight Safety Explodes The Myth of Three

A YEAR AGO, on December 15, 1951, there hadn't been a fatal accident among the U. S. international or domestic airlines, scheduled or irregular, for 113 days. Then, on December 16, a Curtiss C-46 crashed at Elizabeth, N. J., killing 56 people. Two others followed in quick succession at Elizabeth, one on January 10 and another on February 10.

Three accidents. That myth of three.

Everyone has heard of things, particularly unpleasant things, such as accidents and deaths, happening in threes. Was the series of crashes at Elizabeth, which brought about the closing of one of the nation's busiest airports, another example of this strange phenomenon?

As a matter of fact, it wasn't. Fatal airline accidents don't happen in groups of three—at least not in great enough numbers to mean anything. Statistically, only 12 fatal accidents out of 117 occuring during the 14-year period since 1938, occurred in groups of three. Ten percent followed that myth of three.

Facts on Record

At that time it wasn't so clear that groupings of three in tragic matters was a myth. Now the facts are clearly on the record. In a paper titled "That Myth of Three," published by the Flight Safety Foundation, air transport analyst David S. Stanley has reviewed the fatal accident record of the scheduled and irregular U. S. airlines, domestic, international and Alaskan, for the period 1938 through 1951.

Stanley's conclusions:

- **No grounds exist** for believing that fatal airline accidents are prone to occur in groups of three.
- **Most predominant** fatal accident grouping is pairs.
- **Fifty percent of the accidents** occuring in this 14-year period formed some type of grouping.
- **Fatal accidents do occur more frequently** in the fall and winter months, with October, November, December, and January accounting for 50% of all such accidents during the 14-year period. January alone accounted for 17%.
- **The frequency of airline fatal accidents,** the number of days between groups, is on the increase: an increase of 700% during a period when plane miles flown increased only 170%.

Stanley discovered that all is not simple in attempting such a study. How close together must accidents occur to form a meaningful group? Stanley decided to establish five groups of varying duration: 14 days, 21 days,

28 days, 35 and 42 days. Accidents occurring during the 14-year study period were then tabulated with respect to each of these groupings (see tables).

When considering groupings as those successive accidents occurring within 14 days of the previous accident, fatal airline accidents appeared to group most frequently in pairs. Seventeen of 23 groups fitting the 14-day pattern were in pairs and involved 34 of the 117 accidents during 14-year study period. In each of the five study periods, groupings of two accidents were the most prominent. Similarly there were more groupings, 25 in all, falling within the 28-day group than in any other.

The interval of time between groups of accidents has increased by 700% during the postwar period as contrasted with prewar and wartime experience. Some of this may be due to increased plane miles flown but revenue plane-miles increased by only 150% during this period, Stanley claims. This is reflected in average number of days' intervals, derived by statistical formula, between accident groupings.

Prior to the war, the average interval between groups of accidents was 44.3 days. This was reduced to 43.3 days during the war and to 5.4 days since the war. The average for the entire period is 9.9 days interval. Despite the sharp reduction in time intervals between groups of accidents, the fatal accident rate per one million plane-miles improved during this period, going from .039 in the prewar period to .030 in the wartime and .028 in the postwar era.

News Briefs

SAFETY

A suggestion that **CAA safety agents** be put on a three-shift basis at New York's four main airports has been turned down by **CAA administrator Charles F. Horne.** Proposed by the National Air Transport Coordinating Committee, the plan was rejected because, Horne explained, such agents were busy with a variety of duty at all hours, but were also available to the airports if needed. Tieing them down further, he felt, would serve no purpose.

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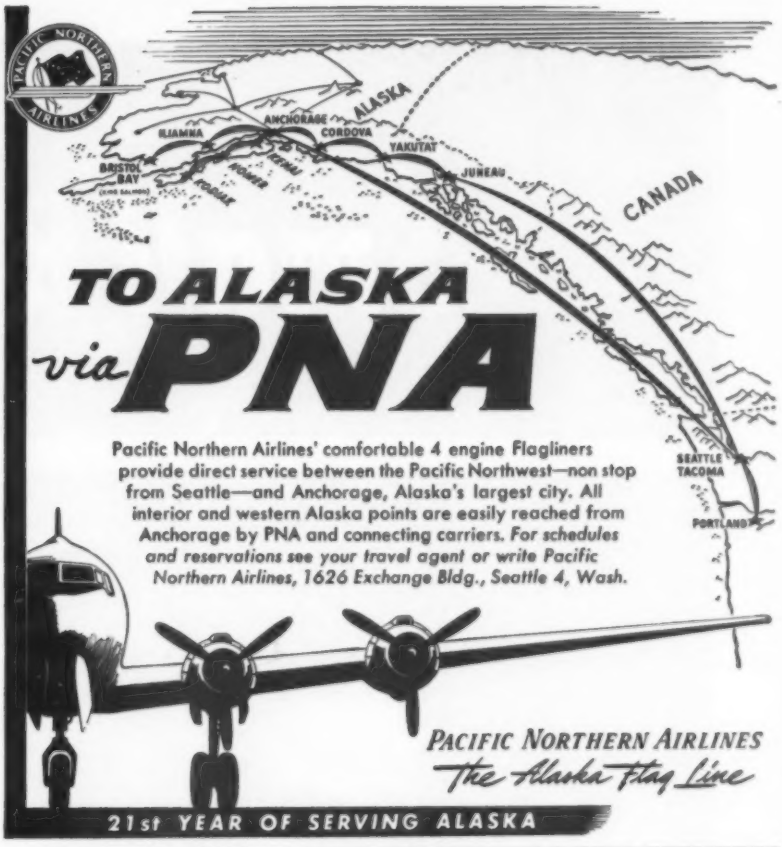
The **Flight Safety Foundation** has received $25,000 from **Laurance S. Rockefeller,** as the largest single contribution so far to an expanded safety promotion and education program.



Small Business

Representative of the 4,500 "small" businesses which produce almost half the parts for Pratt & Whitney engines is the MB Manufacturing Co., Inc. of New Haven, Conn. Started in 1938 as a small machine shop its first order came from Pratt & Whitney for pipes, elbows and small parts. Today 90 percent of its business is making engine mounts for Pratt & Whitney engines; it has close to 500 employees. (Shown are Chief Inspector Herman Beckman and Plant Superintendent Frank Giannotti.)

s helps do a Big Job

4,500 of Pratt & Whitney Aircraft's 5,000 Suppliers are "Small" Businesses

THE FACT that thousands of small businesses play a very big part in Pratt & Whitney Aircraft's production is far from accidental.

Some 27 years ago, when Pratt & Whitney Aircraft itself was a small business, its founders established the principle that approximately half of the work load should be borne by outside companies. Over the years this has meant that thousands of companies all over the U. S. have joined the ranks of its regular suppliers.

Now it has reached a point where there are over 5,000 subcontractors and suppliers furnishing parts, materials and supplies necessary for the building of Pratt & Whitney engines. Significantly, 90 percent of these suppliers—4,500 out of 5,000—are "small" businesses, firms with less than 500 workers.

Achieving production on such a broad base is something that could only be found in America. It is a typical example of how big business contributes its organizational ability, its engineering resources, and its know-how to make it possible for smaller businesses by the hundreds to share in major production assignments.

All Americans benefit by this type of teamwork. The task of providing equipment for the armed forces is not confined to a few big suppliers. Instead, large prime contractors like Pratt & Whitney, who alone have the resources to develop major items of military equipment, generate enough production assignments to keep thousands of medium and small sized companies busy helping to stock the nation's arsenal.

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Extra Section

By William D. Perreault

NO ONE ever really makes a solo flight. These were the modest words of Pan American World Airways pilot **Charles F. Blair, Jr.,** upon accepting the Harmon Trophy for his spectacular polar flight in a single engine fighter, the North American F-51. Blair elaborated by listing the many individuals and organizations that contributed to the success of the flight in one way or another, concluding: "Flights such as mine are made up of 95% preparation and about 5% execution."

Blair may have contributed to the Pan American legend with his good natured comments on the company attitude toward his flight, which netted the USAF a new navigation system. Captain Blair said (at a special luncheon sponsored by Pan American and honoring the three Harmon Trophy winners) company officials warned that if the flight was successful he was a Pan American World Airways captain, but if it turned out not so good he was simply a pilot on leave from one of the airlines.

•

The American public, which sometimes satisfies its yen for travel by buying airline tickets, likes travel in its entertainment, too, according to a survey of films preferred by television stations. The Institute of Visual Training, which conducted a survey, found travel films most popular with the 69 stations replying. The footloose American who used to have to trek downtown to the theatre, or at least down the street to the neighborhood movie, can now satisfy his wanderlust without getting up off the couch. And who can tell, perhaps he will be moved to buy that airline ticket.

•

We noted with interest TWA's need for 48 additional flight engineers and its invitation to all TWA mechanics to bid on the positions. Trans World Airlines is one of the operators that stress the need for mechanical background for flight engineers, a point with which we are in hearty agreement. Qualifications cited by TWA include possession of A&E license, completion of CAA's flight engineer written exam, and age between 23 and 35. Experience requirement includes four years of diversified practical experience in maintenance, or an engineering degree plus maintenance background.

•

Little has been said about the conversion of the Convair 340 to turboprop power since the initial information on this possibility was played up at the time of the original equipment sales announcements. Meanwhile the Allison Division of General Motors has logged 159 hours on the Convair Turboliner, the Allison T-38 powered version of the Convair 240, and CV-340 operators are hauling around about 250 pounds additional structural weight aimed at making conversion to turboprops possible. This seems like useful insurance against obsolescence if turboprop engine development should smooth out.

•

A useful ADF station log cataloging pertinent facts about homing ranges, including low frequency ranges, control towers, radio beacons, and ILS compass locators has been compiled by the LearCal division of Lear, Inc. It ties together in one package a 36-page booklet, data on station identification, location, frequency, power magnetic bearings to the airport nearest radio facilities, etc. Priced at $1, the log is available at Lear distributors or directly from LearCal Division, Lear, Inc., 11916 West Pico Blvd., Los Angeles 64, Calif.

•

Getting the most out of your engineering personnel? If so you are in a rare position, according to the National Society of Professional Engineers. In a newly issued report (*How to Improve the Utilization of Engineering Manpower,* price: $2, NSPE, 1121 15th St., N. W., Washington 5, D. C.) the NSPE summarizes a survey of 500 companies employing 106,000 engineers and concludes that the majority of companies can go a long way toward solving the engineering shortage by better utilization of existing personnel. The report also notes that, in an effort to increase engineer recruitment, 26% have relaxed age standards, 28% relaxed educational standards, 39% relaxed experience requirements, and 19% relaxed physical requirements.

Workmanship Blamed In C-46 Accident

An elevator control system failure attributed to "poor workmanship and inadequate inspection" has been determined by the Civil Aeronautics Board as the probable cause of the accident at Miami International Airport on August 4 involving a C-46 owned by R. Paul Weesner, in which the two-man crew and two non-revenue passengers were killed.

The accident occurred on a ferry trip from Burbank where the plane had been overhauled for passenger service at Slick Airways' maintenance base. An unsecured bolt connecting the elevator cables and a missing bolt from the push-pull tube, plus "64 improperly driven or headed rivets found in the newly-fabricated elevators" were considered by the Board as "ample evidence" of poor workmanship.

In theory, CAB said, procedures established by Slick at its Burbank base should have functioned satisfactorily during such overhaul and modification as was being performed in this instance.

"The weakness," CAB concluded, "apparently lies in the failure to provide proper tie-in procedures between workmen on different shifts on a particular job and between inspectors working different shifts on the same job. It is in this area, apparently, that the breakdown occurred, thus resulting in this aircraft being released and erroneously certificated as airworthy."

CAA's Sixth Region air carrier safety branch advised the Board it had an "accelerated inspection" of Slick's operation underway at the time of the accident. CAA is in the process of preparing a report on the deficiencies found.

CAA Office of Aviation Development Dropped

Civil Aeronautics Administration has abolished the Office of Aviation Development and has turned the responsibility for future general aviation and aviation education programs over to Joseph D. Blatt, recently appointed assistant administrator for program coordination.

The Office of Aviation Safety has been delegated to provide technical engineering advice and assistance on the development of aircraft and equipment for agricultural, industrial, executive and corporation, instructional, and personal flying. The Aviation Information Office will be in charge of publishing and distributing literature and visual aids.

Former director of the Office of Aviation Development, Wiley R. Wright, has been named to Blatt's staff as director of general aviation.

A few of the 225 types — *no two alike* — tailored for aircraft by AiResearch

Shown here are a handful among the latest advances in air valve design pioneered by AiResearch.

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Typical new applications are mixing valves for mixing combustion gas and bleed air, also an advance design pressure ratio sensing valve for unloading gas turbine compressors.

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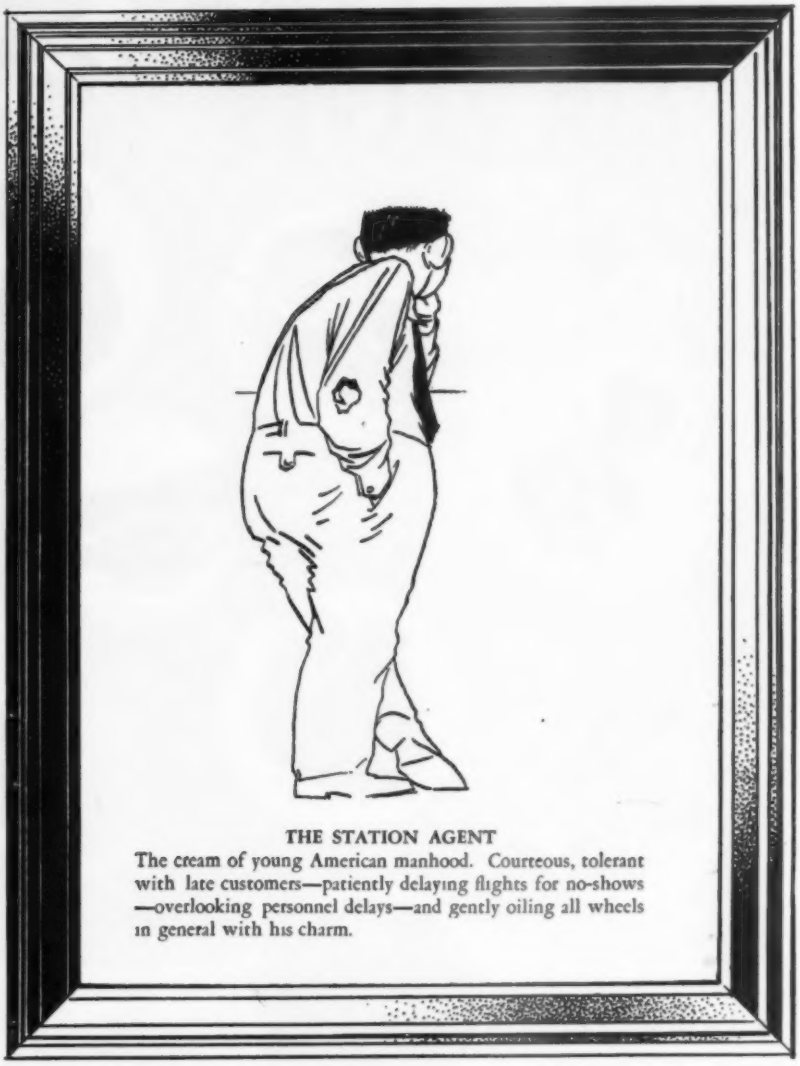
Ready for Hanging

One of a series of selected portraits of some very select members of the airline family, as seen by the eye of Richard E. Chamberlain.



THE STATION AGENT

The cream of young American manhood. Courteous, tolerant with late customers—patiently delaying flights for no-shows—overlooking personnel delays—and gently oiling all wheels in general with his charm.

Captain Held at Fault In 240 Accident

Failure of the captain in command to monitor the copilot's approach and take corrective action when his aircraft first went appreciably below a normal approach path was cited by a Civil Aeronautics Board accident investigation report as probable cause of an accident involving a Northeast Airlines' Convair 240 near LaGuardia Airport last January 14.

Mechanical failure was ruled out by CAB because testimony of the pilot in command and the nature of the damage "strongly suggests that the approach was being made visually" and the copilot, who was making the approach "inadvertently caused, or allowed, the air speed to drop markedly below the specified 140 mph approach speed, and too near the stall speed with its attendant extremely high sinking rate."

The Board said that "rapidly deteriorating weather" and a glassy water surface limiting its use as a medium of depth perception also were contributing factors.

The plane crashed in Flushing Bay with 33 passengers and three crew members aboard. No fatalities resulted.

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AMERICA'S LEADING AIRLINE

AMERICAN AIRLINES INC.

Maintenance Bulletin Board

LOW RANGE OHMMETER developed for Eastern Air Lines is used by mechanics E. E. Mitchell and Bernice Hanna to check conductivity of ignition harness wiring.

New Ohmmeter Saves EAL Time, Money

A low range ohmmeter for the detection of flaws in low tension ignition wiring is saving Eastern Air Lines thousands of dollars annually and has cut ignition harness overhaul times at EAL's Miami, Florida, base from eight to two hours, a 75% reduction.

Designed and built specifically for Eastern by the Petruff Radio Sales and Service Company of Miami, the new test unit costs less than $100 and is capable of reading 1/5000 of an ohm, a sensitivity that permits detection of a single broken strand or poor solder joint in an ignition harness with 40 conductors of seven strands each.

Under the previous method used by EAL for checking harnesses with a high voltage tester, all but a single wire could be broken and the assembly would test satisfactorily. As a result each harness was completely disassembled when returned for overhaul and the completion of its assigned 5,000-hour overhaul period.

With the new unit shop mechanics can not only determine whether there is a flaw in the harness but can pinpoint the trouble to a single connector, permitting replacement of only the defective parts. Its operation requires no electrical experience and any defect in a harness which would affect its conductivity is clearly indicated on the test unit gage.

As to the ultimate savings the unit will bring, EAL expects these to grow to many thousands of dollars annually, particularly when applied to its growing Lockheed Constellation and Martin 404 fleets.

Douglas Recommends Inspection Procedure

The fuel dump systems in large transport airplanes were designed and installed at no small expense, and their maintenance, which includes periodic operational tests, requires considerable additional effort to prevent leakage and to make sure they will operate when they are needed.

But the percentage of times that a pilot will elect to dump fuel instead of landing the airplane overweight is very low, introducing another maintenance function, the overweight landing inspection. The Douglas Aircraft Company in its September-October service magazine recommends this inspection procedure for the overweight, hard, or rough landing with DC-4, DC-6, and DC-7 airplanes.

1. **Check for wrinkles** in the bottom skin area on both sides of the inboard and outboard nacelles.
2. **Check landing gear** for possible bent main gear axles.
3. **Inspect wing station** 130 and 167 bulkheads between front and center and center and rear spars.
4. **Inspect lower front spar cap** at the inboard and outboard nacelle attach points of the No. 2 and No. 3 nacelles.
5. **Inspect the nacelle skin,** particularly at the bottom longerons.
6. **Inspect the outer wing panel** attach point for skin wrinkling on the bottom side of the wing.
7. **Check for fuel leaks.**
8. **Lower the flaps** and inspect hinges and hangar brackets.
9. **Check the front and rear wing spar webs** from the fuselage to the outboard side of the inboard nacelle.
10. **Inspect the internal and external structure** of the lower wing to fuselage attachment between the front and rear spars.
11. **Inspect the underside of the fuselage** for skin wrinkles and buckling at the nose section joint (Station 129).
12. **Check the longitudinal beams** which support the nose gear trunnions in the nose wheel well.
13. **Check tunnel side panels** and bulkhead for wrinkles and buckling. Check the nose wheel gear for a bent piston.

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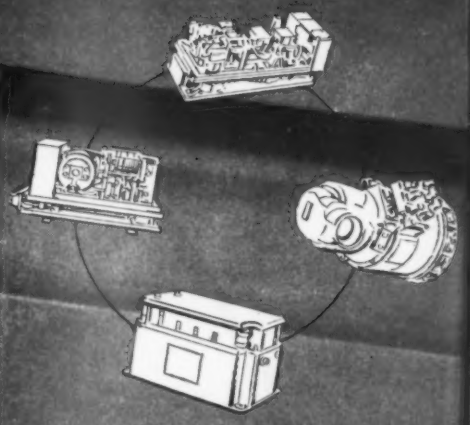

The current standardization work on a-c control panels is the latest development by Westinghouse in aircraft electrical systems. This development is aimed toward an automatic control system, including paralleling and synchronizing of the generator. These automatic systems will be particularly valuable for aircraft having a limited crew—and will ease crew duties and provide more reliability.

Imagine an electrical system where circuits are next to a tank car of gasoline! Where temperatures range from 160 degrees to minus 67 degrees F and change rapidly. Where the whole system is subject to vibrational stresses. Finally, add routine functions of accommodating sudden load changes, system surges, and of meeting switching requirements. These are the severe problems that Westinghouse designers of modern aircraft power systems have had to overcome.

For more than 36 years, Westinghouse has been producing high-quality a-c and d-c equipment to provide continuity of service for aircraft. In fact, Westinghouse pioneered the research, development, and production of a-c systems . . . alternators that provide power to start engines, operate pumps for heating and ventilating, flight control, lighting, and electronic devices. And to complete the electrical system Westinghouse also supplies regulators, breakers, generators, control panels, motors, hoists, rectifiers and transformers. All these products have been tried, tested, proved by millions of airborne kilowatt-hours.

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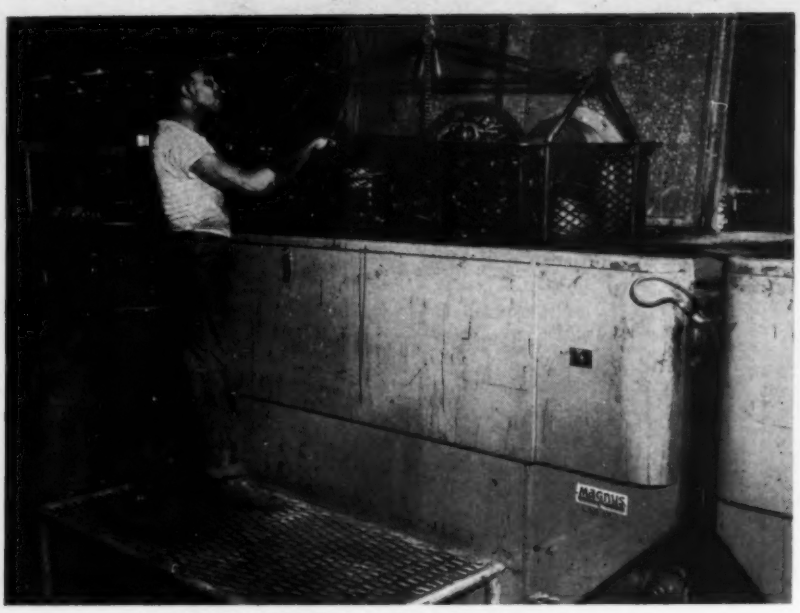


NEW CLEANING MACHINES, like one shown above, handle up to three engines daily for C&S.

C&S Equips Engine Cleaning Section

Engine parts cleaning at a saving of better than half the cost in labor and materials and with increased production are but a few of the benefits being gained from Chicago & Southern Air Lines' newly equipped engine cleaning section in the company's Memphis, Tenn. overhaul shop. Where two full working days were required in the past to process the cleaning of one engine through the shop section, three new Magnus Aja Dip cleaning machines now produce up to three engines daily.

Each of the new Magnus units, as described by C&S, weighs slightly under 4,000 pounds, has a liquid level capacity of 730 gallons, and will accommodate a working capacity of 1,300 pounds of engine parts. Installed at a total cost of approximately $14,300, the units have given Chicago & Southern a saving in excess of $100 per engine cleaned and will offset their own cost upon the cleaning of some 125 Wright 3350 BD engines.

Similar savings are being produced for Wright C9GC engine cleaning operations where the labor and materials cost per engine had dropped from $99.42 to $39.56.

Cleaning procedures adopted by C&S for the Aja Dip installation involve the use of three solutions: Magnus 55P degreasing solution, Magnus carbon removing compound No. 755, and Varsol solvent. Parts housed in large steel baskets are placed in the No. 1 machine, containing the degreasing solution, where they are vigorously agitated for twenty minutes with the solution temperature held at 150°F.

With the aid of an overhead monorail hoist installed with the new cleaners, the basket is then transferred to the No. 2 machine, using Magnus No. 755 carbon removing compound, where the parts are retained in the agitated solution for periods ranging from 10 minutes to one hour, depending upon the extent of carbon build-up.

Basic engine parts require one hour in the No. 2 tank, while other parts, such as cowling, heat baffles, and rubber parts, require as little as 10 minutes.

Last step in the C&S procedure calls for transfer to the No. 3 tank where the parts are held for 10 minutes in a Varsol bath before being removed and placed on inspection racks.

Of the equipment itself, the Magnus Aja Dip is manufactured by the Magnus Chemical Co. of Garwood, N. J., and uses the mechanical agitation method of cleaning. Parts baskets are placed on a strong grid type platform, which is moved up and down 60 times a minute through the cleaning solution. Power for the platform operation is supplied by a 5 hp electric motor and the solution temperature is maintained by a 45 kw heating element.

In operation the repeated and rolling motion of the solution "shears" the loosened deposits from the part surfaces, according to C&S reports, which claim not only faster results than by the spray and dip method previously used, but a far superior cleaning quality.

C&S looks forward to many economies from its new cleaning equipment, an installation which, it estimates, will pay for itself in a relatively short time and give the carrier a modern and efficient shop operation.

Flying Tigers Install Cockpit Speakers

The Flying Tiger Line is equipping its Douglas DC-4 aircraft with cockpit speakers. The installation will include an amplifier and the speakers will be located on each side above the cockpit windows.

Douglas DC-6A airplanes now on order by FTL will have VHF, HF, VOR, and glide scope, all dual installations. The omnirange will use the new Collins Course Line indicator on each set. Autopilots will be Sperry A-12 with automatic approach couplers and the Sperry Zero Reader.

CAA to Handle Foreign Carrier Spare Parts

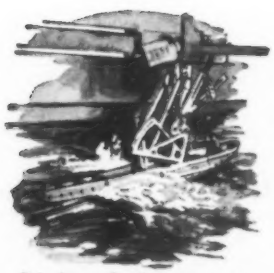
The Civil Aeronautics Administration's Office of Aviation Defense Requirements has taken over the certification of purchase requirements of foreign air carriers for spare parts and maintenance materials under defense production controls, following the Mutual Security Agency's discontinuance of the service. MSA, however, will continue as claimant agency for foreign carriers as regarding new aircraft.

Under the new set-up, the CAA division will continue to make over-all allocations between the domestic and foreign group of air carriers. The office will also continue to issue the Defense Order rating for each purchase, indicating priority.

More C–47 Overhauls

The USAF has given a new supplementary order to Grand Central Aircraft Co. for the overhaul of an additional number of C-47's. The work will be done at Glendale, Calif.

Seaplane research is bringing new phantoms to life in Stevens Tech's towing tanks, testing ground for the U. S. Navy Marlin's advanced hull design.



Bringing such advancement as the Martin M-270 experimental hull, delicately instrumented models prove today's dreams for tomorrow's air-sea power at the Experimental Towing Tank, Stevens Institute of Technology.

AN instrument-covered seaplane model knifes through the waters of a Stevens Tech towing tank. A Naval Bureau of Aeronautics researcher pores over plans for a jet-powered, swept-wing flying boat. A Martin engineer makes dreams take wings on his drawing board. And, step by step, planes that combine water-based mobility with land-based speed come closer to reality!

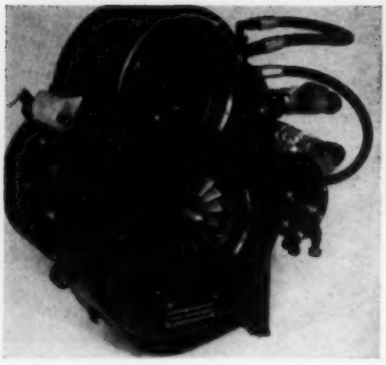
Latest product of seaplane research teamwork, today's advanced Martin P5M-1 Marlins add new sinews to our Navy's anti-submarine forces. Their performance is in the tradition of the history-making Martin seaplane flight to Catalina in 1912, the famous Martin China Clipper, the dramatic rescues of Mariner patrol planes and the record-load-carrying Mars flying boats of World War II.

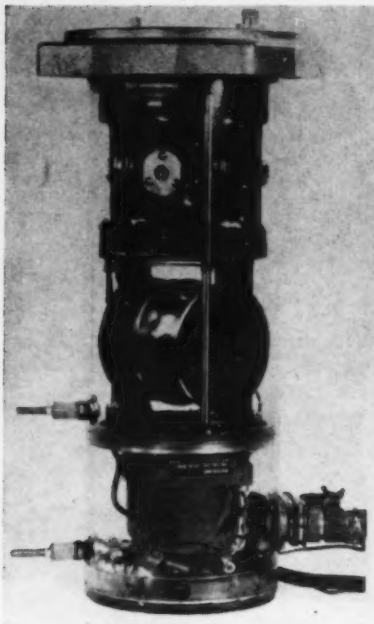
Today's seaplane research promises to make their jet-powered successors tomorrow even more potent weapons in America's arsenal! THE GLENN L. MARTIN COMPANY, Baltimore 3, Maryland.

Martin AIRCRAFT

Builders of Dependable Aircraft Since 1909

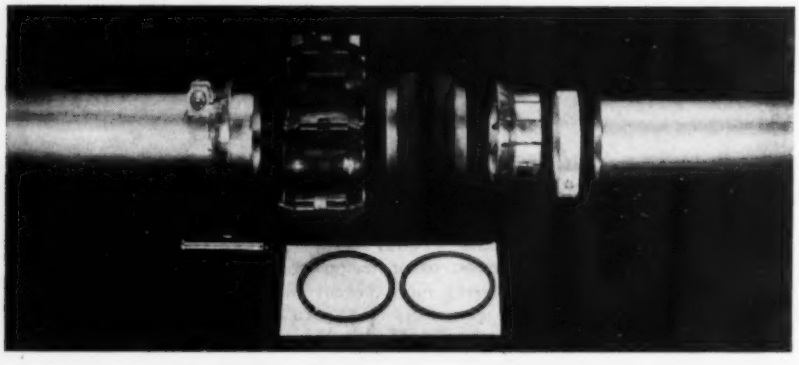
DEVELOPERS AND MANUFACTURERS OF: Navy P5M-1 Marlin seaplanes • Air Force B-57A Canberra night intruder bombers • Air Force B-61 Matador pilotless bombers • Navy P4M-1 Mercator patrol planes • Navy KDM-1 Plover target drones • Navy Viking high-altitude research rockets • Air Force XB-51 developmental tactical bomber • Martin airliners • Guided missiles • Electronic fire control & radar systems • **LEADERS IN** Building Air Power to Guard the Peace, Air Transport to Serve It.

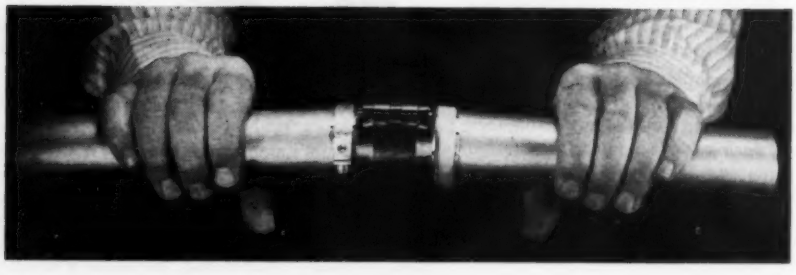




Stratos Model S60-11A supercharger, rated at 62 lbs. of air flow per min., is being manufactured by the Stratos Div. of Fairchild Engine & Airplane Corp. It incorporates ball duct type openings on outlet and inlet to simplify alignment with aircraft ducting and a new "Vee" clamp mounting flange said to simplify installation. Currently being installed on PAA Convair 240's, it is designed for mounting on the 1.4to1 drive pad on right side of R-2800 engine in the 240. Address: Stratos Div., Fairchild Engine and Airplane Corp., Bay Shore, L. I., N. Y.

Compact Pressure-Measuring instrument, developed by Fischer & Porter Co., can measure pressure with an accuracy of one part in 5,000 and has a sensitivity of one part in 15,000. Known as the Press-I-Cell, the meter is 5 in. in diameter and 14 in. in length. It is portable and said to be temperature-stable and unaffected by vibration or mounting position. Typical pressure ranges are one atmosphere absolute, 400 in. water column, and 150 in. Hg. differential. Address: Fischer & Porter Co., Hatboro, Penna.





Flexible joint for rigid tubing manufactured by the Aeroquip Corporation for such applications as fuel line installations in wing areas of large transports allows for an angular misalignment of plus or minus 10° and requires no beading or flaring. Address: Aeroquip Corporation, 300 S. East Ave., Jackson, Michigan.

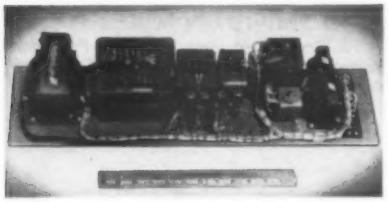
New Products

Safety Drill Guide

The Sheldon safety drill guide, being marketed by Bell Electric Company, permits the worker to locate the drill in the template hole before the drill tip can make any contact, thus, the company claims, no bodily injury can be sustained due to accidental contact with the tool. Equipped with a patented, spring-mounted guide tip with a control shoulder, the drill cannot penetrate work until control shoulder comes in contact with template face.

The new safety drill guide may be applied to all standard electric and pneumatic drills and can take drill bits from No. 40 to No. 10.

Address: **Bell Electric Co.**, 1844 W. 21st St., Chicago 8, Ill.



Magnetic Amplifiers

Karl-Douglas Associates recently has developed a new line of magnetic amplifiers as low-cost devices for precision control and amplification of a-c current. Claiming that the amplifiers perform the functions of vacuum tube or motor-type regulators, the manufacturer states that they are immune to shock and vibration and can be mounted anywhere. Operation begins immediately because no components are present that need a warm-up period.

The magnetic amplifiers can be engineered to operate from any single or polyphase a-c supply voltage. Under certain conditions amplifications of one to 1,000,000 are claimed.

Address: **Karl-Douglas Associates**, 3160 W. El Segundo Blvd., Hawthorne, Calif.

Self-Locking Fastener

A new quick-acting, self-lock fastener, designed by the Dzus Fastener Company, is particularly suited for securing water and gas tight casings. It is currently being used on electronic, communications, and airborne equipment.

An enlarged head which can be grasped by hand eliminates the need of screw drivers or other special tools. Little mounting space is needed in the supporting frame or casing because a small wire form has been used instead of the usual receptacle or spring. A pair of springs in the head of the stud keeps the casing in place.

Address: **Dzus Fastener Co., Inc.**, Babylon, N. Y.

Industrial Hose

A special type flexible, high-pressure industrial hose is being turned out by the Republic Rubber Division of Lee Rubber and Tire Corporation. Named Wiretex, the hose is said to have unusual characteristics of strength, flexibility, oil and abrasion resistance, plus ability to withstand both high and low temperatures.

Mandrel cured, Reprene tube is the material used in Wiretex in lengths up to 60 ft. Hose carcasses are encased in either abrasion resistant, thick rubber covers or covers made of braided textiles. Designed to carry various gases or fluids under varied pressures, the hose is not weakened by constant vibration or flexing and is rust and corrosion-proofed, the manufacturer states.

Address: **Republic Rubber Div.**, Lee Rubber & Tire Corp., Youngstown, O.

Light Plane VHF Transmitter-Receiver

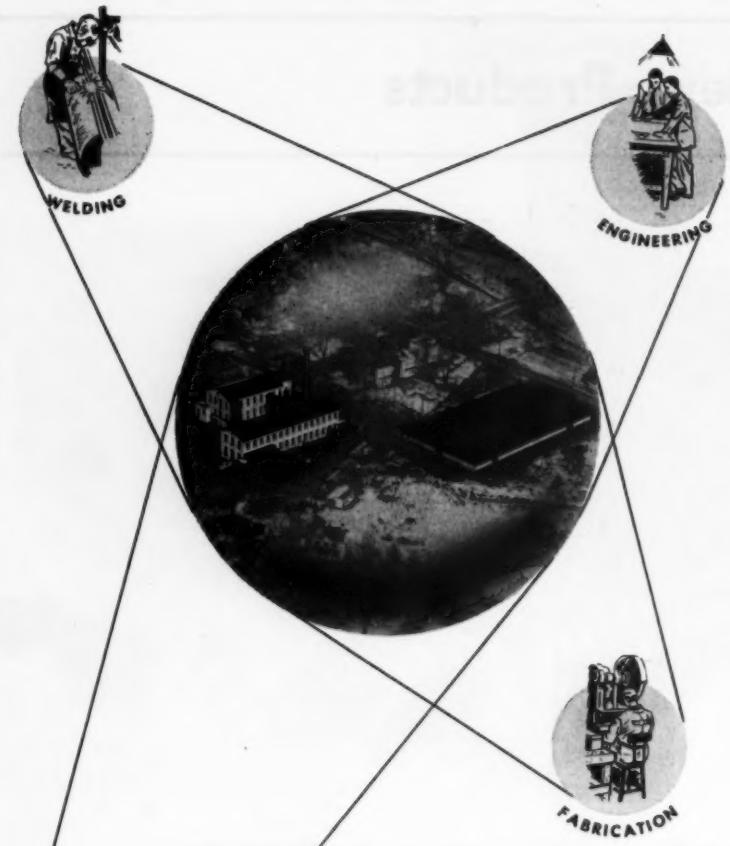
A new VHF receiver-transmitter for private pilots has been designed by the National Aeronautical Corporation and is expected to be available for general sale in January. Designated the Narco Simplexer Model VC-12, the unit combines a tunable receiver with a 12-channel VHF transmitter of standard glove compartment panel size, 6 in. deep and weighing under 3 lbs.

Crystal control provides numerous combinations of transmitter frequencies from 118 to 127 megacycles. The manufacturer claims that dial calibration inaccuracy for receiver tuning has been brought to a minimum through the use of crystal calibrated reception in which transmitter frequencies are tone-tuned in the receiver.

The Simplexer can be used either alone or in conjunction with Omnigator. The latter system provides simultaneous communication and navigation. If the new unit is added to the Omnigator, the Omnigator power supply can be utilized. If desired Model V12MP-4, a smaller power supply, may be used. Narco Model LFR low frequency adaptor may be operated from the Simplexer with or without Omnigator.

The Simplexer may be provided with one or two crystals for minimum cost installations. Deluxe installations are possible with specially priced crystal kits to permit maximum use of Simplexer's characteristics.

Address: **National Aeronautical Corp.**, 180 S. Main St., Ambler, Pa.



Whats inside?

● Inside these two buildings is a complete subcontracting shop—specializing in stainless steel fabrication. What's it got? Special Engineering Staff—Equipment for spot, seam, heliarc and oxyacetylene welding—Dies, jigs and fixtures for a great variety of parts—Microscopic and mechanical inspection equipment—these are the fundamentals! Add the experience of our operating technicians and you get some idea of the facilities that have earned us an industry-wide reputation as a truly unique and reliable subcontractor.

Lavelle

AIRCRAFT CORPORATION • NEWTOWN, BUCKS COUNTY, PA.

Toggle Switch Boot

New APM toggle switch boot serves as a high pressure seal for standard toggle switches and is now available, according to its producer, Automatic and Precision Manufacturing. Its single unit construction eliminates need for special assembly. Silastic material used in boot permits operation in temperature range of —80°F. to 500°F. Boot provides insulation against electrical shock at the toggle.

Particularly suited for aircraft, rocket, and ship equipment application, toggle switch boo s can be designed and supplied to meet special requirements.

Address: **Automatic and Precision Manufacturing**, 315 E. 91st St., New York 28, N. Y.

Ferro-Dynamic Loop

Lear has increased production on its new Model LFL-1 ferro-dynamic loop, which can be installed in any plane equipped with the ADF-12 after a simple modification involving use of AN connectors.

A compact unit, the ferro-dynamic loop is contained in a moisture- and dust-resistant housing. The manufacturer states that the ferrite core loop with electrical quadrantal error correction results in greater accuracy, faster response, improved sensitivity, and better signal-to-noise ratio.

Address: **LearCal Division, Lear, Inc.**, 11916 W. Pico Blvd., Los Angeles 64, Calif.

Cable Clamp

Holub Industries, Inc., has announced a non-inflammable plastic cable clamp, made of Saran, a thermoplastic material, is on the market. Having both electrical and thermal properties, the clamp is said to be free from fungicidal attack and is able to withstand changes in atmospheric conditions. Reduction of weight is claimed as another feature.

The clamp can be opened to any dimensions and the edges are round to prevent damage to insulation. Being resilient, the plastic clamp eliminates need for lock washers in certain cases.

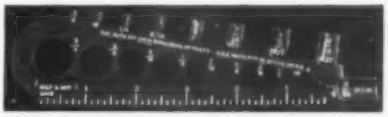
It is made in 17 stock sizes, ranging from ⅛ in. to 1¼ in.

Address: Holub Industries, Inc., Sycamore, Ill.

Safety Goggles

A plastic safety goggle called SAF-I-FLEX which features comfort in wearing and fog-free vision in use has been placed on the market by the United States Service Company. Weighing 1.7 ounces, it provides a replaceable lens installation and is said to offer full protection from all impact hazards.

Address: United States Safety Service Company, 1215 McGee St., Kansas City 6, Mo.



Bolt & Nut Gage

New bolt and nut gage, suitable for hardware dealers, maintenance men, order clerks and mechanics, is being manufactured by Sorrell Manufacturing Company. Made of Styron (Dow polystyrene) plastic, the tool is lightweight and is said to be impervious to oil, grease, water, alkalies, and most acids.

Nuts are measured with posts that are scaled to both SAE and USS types and bolt diameters are measured in a series of holes through the center of the gage. The gage has an overall length of 7¼ in.

Address: Sorrell Manufacturing Co., 15017 Detroit Ave., Lakewood 7, Ohio.

A-C Aircraft Motor

A 2 hp, 400-cycle, 3-phase a-c aircraft motor is in production at the Aircraft Division, U. S. Electrical Motors

AIRCAR AIR CARRIER SERVICE CORPORATION

WASHINGTON, D. C.

Offers For Sale

FOUR DC-4B AIRCRAFT
(Fifty-Five Seat De Luxe Interior)

ONE DC-3C AIRCRAFT
(Twenty-One Seat De Luxe Interior)

DC-4's have been continuously maintained in excellent operating condition by one of the leading domestic and one of the leading international airlines.

Radio aids include standard communications, navigational radio, command transmitters, landing aids, VHF, ILS, and Omni.

DC-4's are equipped with R2000-9M3 engines. DC-3 is equipped with R1830-92 engines. Both cases no more than 50 hours since overhaul.

For further details and inspection contact by telegram "Aircar Washington." By telephone contact Executive 5350; Mr. Thomas Sim, Vice President, Air Carrier Service Corporation.

Inc. Designated type GA, the unit offers internal gearing to provide multiplied torque at low speeds for driving such components as hydraulic pumps, compressors and hoists, the company states.

Designed to meet Air Force specifications 32590, the motor has a range of gear ratios with output speeds from 1,500 to 5,000 rpm. The company lists the outstanding features of type GA as hardened and shaved helical gears, pyramidal base, integral fan for self-ventilation, internal spline take-off shaft and AN mounting pad.

Address: U. S. Electrical Motors, Inc., Aircraft Division, Terminal Annex, Los Angeles 54, Calif.

Technical Literature

LIFT TRUCK SCALES: A catalog sheet describes lift truck scales of 2,000 lb. to 18,000 lb. capacity designed by Martin Decker Corp., Long Beach, Calif.

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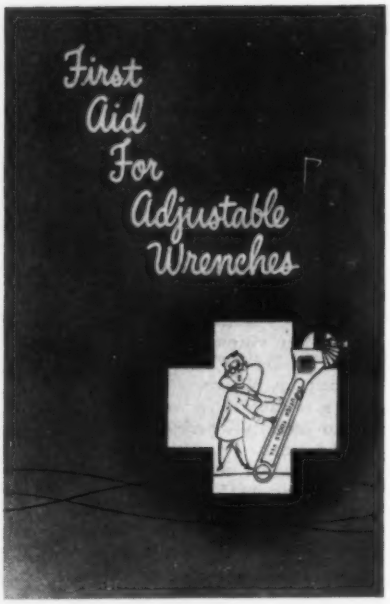
AIRCRAFT SOLENOIDS: PSP Engineering Co., 8420 Otis St., South Gate, Calif., has released a catalog which dispenses information on solenoid purposes, uses, and design, utilizing engineering drawings and data on PSP production models.



WRENCH REPAIRS: "First Aid for Adjustable Wrenches," a four-page pamphlet, tells how to get longer life from adjustable wrenches, includes data on proper care and handling of the tools. The publisher is Utica Drop Forge & Tool Corp., Utica 4, N. Y.

News Briefs

AIRPORTS

Resumption of full commercial operations at **Newark Airport** was accompanied by practically no sign that the public knew or cared. Three calls came in during the first two days, all complaining about alleged cases of low flying, but the complaint office of the National Air Transport Coordinating Committee had nothing more serious to report.

•

Pan American, after spending more than $2 million on its **Rancho Boyeros Airport** at Havana, has sold it to a syndicate of Cuban businessmen for a reported $1.5 million. The sale is expected to end plans to have the Cuban government move commercial operations into a remote military base, since the new syndicate was formed expressly for the purpose of operating the Rancho Boyeros field as a commercial terminal.

•

Cleveland should have a new terminal concourse in six or eight months, the contracts having been let for the work at **Hopkins Municipal Airport.** Five hundred fifty feet long, the concourse will house passenger operations, provide an observation deck on its roof, and cost $528,630. Total terminal cost: $8 million.

•

Huntington, West Virginia, dedicated its new **Tri-State Airport,** with Jennings Randolph, assistant to the president of Capital Airlines, making the key address to the more than 15,000 people present.

•

A new site will have to be found for the **proposed industrial airport** in the Kansas City, Mo., area, since that city's voters registered their lack of enthusiasm for the idea of annexing Clay County as a site by voting the measure down, 66,230 to 60,381.

•

A state-by-state **survey of the nation's airport picture** is the objective of a national study group now being set up. Object of the group, known as the **National Airport Plan Committee,** is to find out what each state has in the way of airport facilities, what is needed for the future, and what money local communities could raise for matching Federal funds.

More airlines have chosen the Convair than any other modern passenger plane:

Now Flying
Aerolineas Argentinas
American
Braniff
C. A. T. C.
Continental
Ethiopian
Garuda Indonesian
K. L. M. Royal Dutch
Mid-Continent
Northeast
Orient
Pan American
Sabena-Belgian
Swissair (Switzerland)
Trans-Australia
United
Western

Soon to Fly
Aero O/Y (Finland)
Aeronaves de Mexico
Aerovias Venezolanas (Venezuela)
Canadian Pacific
Chicago & Southern
C. M. A. (Mexico)
Cruzeiro do Sul (Brazil)
Delta
Hawaiian
National
Philippine
Pioneer

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Twenty-nine leading airlines at home and abroad proudly invite you to fly the Convair ...the world's most popular passenger plane. Ask your favorite airline or travel agent to make *your* next flight a Convair.

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As a transport-trainer for the U. S. Air Force, the Convair is setting new records for versatility and performance . . . another evidence of Convair's ENGINEERING TO THE Nth POWER

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★ AIRPORTRANSIT
Exclusive Hollywood Stop

★ AIRCRAFT MFG. CENTER

The "Islander"
Cinegrill ★ Garden Grill
Heated Swimming Pool

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South Carolina – Midway between New York and Miami

SOUTH CAROLINA
AERONAUTICS
COMMISSION

Airline Commentary

By Eric Bramley

CANNES, FRANCE—We're in southern France on the Mediterranean to report on the meetings of the International Air Transport Association's traffic conferences. These are the groups that have to tackle such tough problems as establishment of tourist-class service to many parts of the world, what the fares are going to be, conditions of carriage, level of standard fares, agents' commissions, etc. There are airline men here from all over the world, trying to put all their views together and come out with something. We'll be reporting on it later.

•

It's between seasons in Cannes now, which means that there are few places open and there is little to do. Life can become somewhat boring after a while. Amusing thing is that the airline representatives know that when they return home their friends are going to envy them their stay on the Riviera—"a vacation at company expense." This accusation brings fire to many an eye, and justifiably. Meetings here last most of the day and often most of the evening. When there aren't meetings, the delegates have private sessions to discuss their positions and various questions. It isn't a vacation, particularly when you return to the office and find a month's work piled on the desk. So be careful with your accusations. It ain't safe.

•

On the way to Europe, we stopped briefly at Shannon, Ireland, and were intrigued by the inexpensive whiskey on sale at the airport: Irish whiskey, $1.50 a bottle; Scotch, $2.50; good American bourbon, $3.50. Americans returning to the U. S. are allowed one gallon duty-free. We're told that over 160 bottles have left on one airplane. And the liquor shop will do $1,000,000 to $2,000,000 worth of business a year. American cigarettes, incidentally, are $1.25 a carton. There are a number of other attractive items for sale. A good place to stop on the way home.

•

During a brief visit in Paris, we toured Air France's installation at Orly, including its commissary. In a small dining room in this building, we were served AF's delicious transatlantic dinner, complete with all the courses and all the wines (and champagne). The service duplicated actual in-flight procedure—the meal was served on the regular tray by a transatlantic steward. This isn't so much a meal as it is an event, and you have to have lots of time available to "suffer" through it.

•

We talked with **Monsieur Dubosc,** AF's director of catering service, and asked him how much food this airline, famous for its meals, uses a month. He gave us some system-wide figures for July, when 4,700 hot meals were served along with 12,500 cold ones and 15,000 breakfasts. Here are a few samples (left-hand column in pounds, right-hand one in bottles):

Butter	2,200	Mineral water	17,000
Beef	3,300	Aperitif	17,000
Mushrooms	440	Champagne	9,200
Ham	1,760	Cognac	7,425
Chicken	7,040	Liqueurs	3,500
Lobster	440	Wine	13,500

•

One of the interesting features of the IATA conference is the IBM simultaneous translation system used in the meetings. Everyone wears earphones and has a very short-range radio hung around his neck. The radio has channels for English, French and Spanish. The speaker talks into a microphone. If he speaks in English, interpreters (sitting in a booth) translate immediately, as he talks, into French and Spanish. The words come out of his mouth as English and are heard simultaneously in the other two languages. This eliminates the necessity of waiting until a long speech is finished to hear the translation. It's a real timesaver.

Present And Accounted For...

IN THE SKIES over our own land, and in the skies over troubled lands throughout the world, Cities Service Aviation Gasolene is present and accounted for... playing its important role in the global struggle for freedom and peace.

Production is surpassing previous highs, but every gallon of aviation gasolene produced at the great Cities Service Refineries is committed to meet the needs of our Air Force, and existing contracts with commercial operators.

When world tensions ease, and our already extensive, modern facilities are expanded, we hope we may serve you, too, with ever better aviation petroleum products, highest quality products . . . Cities Service Aviation Products.

CITIES SERVICE

AVIATION PRODUCTS

New York · Chicago · In the South: Arkansas Fuel Co., Inc.

People

ADMINISTRATIVE

Robert A. Ebert, Northwest Airlines has been appointed to the post of administrative assistant to **Linus C. Glotzbach,** vice president and assistant to president **Croil Hunter.**

William Leroy Walker, former treasurer of Mid-Continent Airlines, has been named director of the economic controls section of Braniff Airways. As head of the new section, Walker's assignment will include budgetary controls, and management engineering studies and procedures.

David Fromson has joined Greer Hydraulics, Brooklyn, N. Y., as contracts manager and administrative assistant to **Robert P. Lord,** treasurer and general manager.

Charles A. Egger has joined California Central Airlines as administrative assistant-management. In the newly created post, Egger will be responsible for the handling of legal matters and various other functions.

J. S. McHugh has been appointed manager of the new products division of Boots Aircraft Nut Corp., Norwalk, Conn.

Carroll E. Lunce has joined Pioneer Air Lines as office manager at the Dallas headquarters, replacing **Will G. Ostrum,** resigned. Lunce will be in charge of all office personnel and activities.

John G. Holschuh has been named manager of the newly created market research section of the Elastic Stop Nut Corp. of America. Holschuh, who joined the company in 1943, recently has been engaged in the concern's sales development activities.

Holschuh

Lawrence

TRAFFIC & SALES

Harding L. Lawrence, Pioneer Air Lines' vice president of traffic and sales, has been elected president of the Air Traffic Conference. Lawrence, who succeeds **James W. Austin,** vice president of traffic and sales for Capital Airlines, is the first local service airline representative to be named to the presidency of the Conference, a component of the Air Transport Association of America.

C. R. Speers, assistant vice president and general sales manager of American

Airlines, and **Robert L. Turner**, vice president of sales for Northeast Airlines, were elected first and second vice presidents, respectively, of the Conference.

Bruce H. Pauly has been named aircraft sales manager of the Pesco Products Division, Borg-Warner Corp., Bedford, Ohio.

United Air Lines has made the following recent changes in its sales force: **W. H. O'Donnell** transferred from district sales manager, Vancouver, to Seattle for the newly created position of chief of outside sales. O'Donnell has been replaced in Vancouver by **Ted Cox**, formerly district sales manager in Fresno. The Fresno post has been taken over by **E. H. Morley**, formerly assistant district sales manager in Honolulu.

B. J. Talbot will succeed **James J. Fauteux** as district sales manager for Northwest Airlines in New York, January 1.

Frank Haggerty has been named district manager of the Los Angeles area for SWISSAIR Swiss Air Lines, with headquarters in the line's newly opened office in downtown Los Angeles.

William J. Kenney has returned to Honolulu as district sales manager for Northwest Airlines. Until his transfer, Kenney was assistant district sales manager for the airline in Seattle.

Arthur F. Hetherington, Jr., has been named Pittsburgh sales manager for American Airlines, and will head American's recently opened off-line sales office there.

Edward K. Ellis, formerly district sales manager for Mid-Continent Airlines in New Orleans, has been appointed city sales manager at Dallas for Braniff Airways.

Asher Lane, Jr., has returned to Delta Air Lines as city sales manager in Birmingham, succeeding **Morely Alexander**, resigned.

—OPERATIONS-MAINTENANCE—

Evelyn Spoor has been named supervisor of Honolulu stewardess service for United Air Lines with headquarters in San Francisco. Miss Spoor, who has been a United Stewardess since 1938, will oversee the flight activities of more than 25 stewardesses flying the California-Hawaii run.

R. E. Brown has been appointed assistant service manager of the Wright Aeronautical Division, Curtiss Wright Corp. Prior to his recent appointment, Brown was supervisor of training and field representatives for the aircraft engine company's service division.

George Jewell has been appointed station manager at Topeka, Kansas, for Trans World Airlines. Jewell replaces **M. Chandler** who has been transferred to Chicago.

Facts and Figures!..

Figure:

Its pulchritudinous possessor, Barbara Lewis, has a package for YOU containing our hope for your happiness at Christmastime. Dark brown hair, green eyes. We figure more grownups (i.e., quality-conscious male customers of Southwest Airmotive) would believe in Santa Claus if the Old Gent stuck to his diggin's at the North Pole and delegated his chimney-chuting chores to less-lumpy lovelies like Miss Lewis.

Fact:

Eight thousand owners and pilots in the past year relied on Southwest Airmotive for all, or part, of their aircraft service. They came from 38 states and three foreign countries. There has to be a reason for such popularity. The reason: Quality.

Southwest Airmotive COMPANY
LOVE FIELD DALLAS

WORLD'S PREMIER AIRPLANE FABRIC

lighter stronger smoother

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Leading Manufacturers of Fabric and Tapes for the Aircraft industry.

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- New automatic gain control.
- Dual-conversion superheterodyne design.
- Control circuits conform to industry standards for integration with any existing ILS system.
- Any of 20 world-wide channels by insertion of crystal.
- Built to the same exacting standards of perfection as the famous Wilcox 440A!

Available Now...
For Immediate Delivery

Write today for complete specifications.

wilcox

ELECTRIC COMPANY, INC.

Fourteenth and Chestnut
Kansas City 27, Missouri, U.S.A.

MILITARY

Thomas J. Rampy has recently been promoted from Brigadier General to Major General. General Rampy, with the United States Air Force, is stationed in Philadelphia.

Rampy

Wood

ENGINEERING

William W. Wood, who joined Link Aviation, Inc., in 1941 as a field engineer, has been made the company's vice president in charge of engineering. Prior to his appointment as vice president, Wood was Link's chief engineer.

Val Cronstedt, for the last two years consulting engineer to the Swedish aircraft engine industry, has been appointed director of engineering for A. V. Roe Canada's Gas Turbine Division.

F. Clark Cahill is the new chief engineer of the engineering and production division of Airborne Instruments Laboratory, Mineola, N. Y. Cahill, with Airborne since its founding in 1945, will direct production engineering activities.

F. W. Gottschling, Jr., has rejoined Greer Hydraulics as administrative engineer and assistant to the president and chief engineer, **Edward Greer**. Gottschling held a similar post with Greer earlier, but recently has been on the west coast with Marmon Products and Parker Aircraft Co.

The following employes have recently completed 20 years or more of service in the aviation industry:

- **W. B. Lester**, American Airlines. Supervisor flight school operations, Los Angeles. 25 years.
- **W. H. Proctor**, American Airlines. Supervisor flight school operations, Chicago. 25 years.
- **Frank C. Judd**, Northwest Airlines. Operations vice president, Saint Paul. 20 years.
- **H. C. Williams**, American Airlines. Chief instructor maintenance training, Fort Worth. 20 years.
- **Dick Brew**, Northwest Airlines. Training instructor, Saint Paul. 20 years.

Citation for service is presented to Joseph S. Murphy, right, formerly supervisor of CAA and ATA liaison in American Airline's Standards and Procedures Division. Murphy, now technical editor of AMERICAN AVIATION, receives the citation from American Airlines' Morris Shipley, left, assistant to the vice president. The citation was presented to Murphy for his excellent record and outstanding service to American Airlines during the long period he was with the company.

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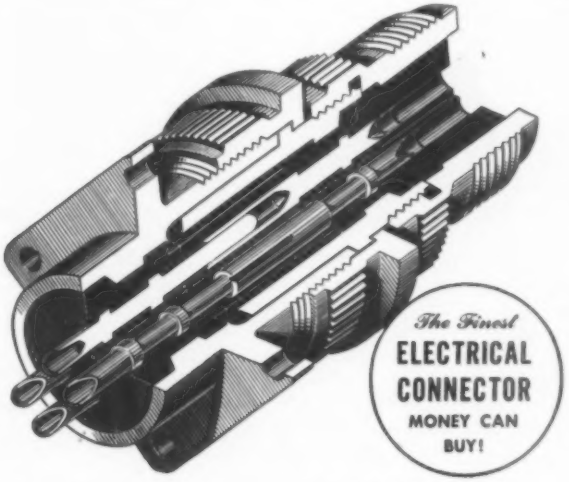
When operating conditions demand an electrical connector that will stand up under the most rugged requirements, always choose Bendix Scinflex Electrical Connectors. The insert material, an exclusive Bendix development, is one of our contributions to the electrical connector industry. The dielectric strength remains well above requirements within the temperature range of −67°F to +275°F. It makes possible a design increasing resistance to flashover and creepage. It withstands maximum conditions of current and voltage without breakdown. But that is only part of the story. It's also the reason why they are vibration-proof and moisture-proof. So, naturally, it pays to specify Bendix Scinflex Connectors and get this extra protection. Our sales department will be glad to furnish complete information on request.



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INFORMATION on positions at NORTHROP

Northrop Aircraft, Inc. is engaged in vitally important projects in scientific and engineering development, in addition to aircraft production. The program is diversified, interesting and long-range. Exceptional opportunities await qualified individuals.

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BOUNDARY LAYER RESEARCH SCIENTISTS...
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ELECTRONIC INSTRUMENTATION ENGINEERS...
FLIGHT-TEST ENGINEERS...
THERMODYNAMICISTS...
SERVO-MECHANISTS...
ELECTRO-MECHANICAL DESIGNERS...
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Qualified engineers and scientists who wish to locate permanently in Southern California are invited to write for further information regarding these interesting, long-range positions. Please include an outline of your experience and training.

Allowance for travel expenses.

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Devastating armament, advanced search and navigation equipment and high speed make the Air Force's new Northrop F-89 Scorpion a powerful defensive weapon. Like the Northrop Black Widow P-61 of World War II, the Scorpion was designed from the outset to do a specialized job superlatively well. This new all-weather interceptor is another product of the long experience of Northrop's top designers and craftsmen.

NORTHROP AIRCRAFT, INC.
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SAB

PIONEER BUILDERS OF NIGHT AND ALL-WEATHER FIGHTERS

Bilateral Talks Move For Venezuela, Cuba

Smoke surrounding bilateral negotiations of the U.S. and several Latin American nations began to clear last week as reports indicated that differences with Venezuela and Cuba were all but ironed out. But negotiations in the thorniest bilateral problem for this country in years, the one with Mexico, have "completely fallen through," according to State Department sources.

The U.S.-Venezuela agreement, in the process for over two years, is expected to be reached "very soon." It is expected to "wash out" a CAB show cause order which, in effect, threatened New York-Caracas operations of the Venezuela line, LAV.

The U.S. and Cuba will reportedly continue on a reciprocity basis, without any formal agreement, but differences which precluded New York-Havana non-stop operations by National Airlines and Cubana are being eliminated.

There has been no official explanation by Federal officials of the latest break in U.S.-Mexican talks. But the State Department advises emphatically that there is no prospect for negotiations in the immediate future. On and off for over a year, talks between the countries were originally slated to be resumed and an agreement reached prior to end of terms of U.S. President Truman and Mexican President Aleman.

Trustee Control for Lake Central Airlines

Management of Lake Central Airlines has been switched to a trustee-type control until CAB can act on a new permanent arrangement for the company. Switch, dictated by the Federal agency, involved transfer of the Weesner family's common stock interests to Harry V. Wade, Indianapolis insurance executive, who is serving as voting trustee.

Eventually, control of the firm will pass to an applicant approved by CAB. Wisconsin Central Airlines has entered an agreement with the Weesner interests which is now before CAB for approval and which contemplates acquisition of Lake Central's assets and routes by Wisconsin Central. Ozark Air Lines, meanwhile, has applied to CAB for all of Lake Central's routes without offering to buy out the firm.

Meanwhile, Dr. R. B. Stewart, treasurer of Purdue University, has been elected to the new board of directors of Lake Central and plans call for him to assume the presidency of the line, if and when CAB approval can be obtained.

Purdue and Wisconsin Central are closely allied under an agreement recently approved by CAB, and Stewart's future post apparently hinges on the outcome of the Lake Central-Wisconsin Central deal.

Wiggins Asks Reversal

E. W. Wiggins Airways, New England local service line, has asked the current four-man Civil Aeronautics Board to reverse a recent 3-2 decision which denied renewal of the carrier's certificate after December 31, 1952.

The deciding vote in the original decision was cast by former chairman Donald W. Nyrop, who resigned October 31.

RECENT CAB DECISIONS

• **Aerovias Sud Americana** granted exemption from certain provisions of charter regulations to authorize certain all-cargo charter operations between U.S. and Latin America.

• **Queen Charlotte Airlines, Ltd.,** granted three-year foreign air carrier permit for service between Prince Rupert, B. C., and Ketchikan, Alaska.

• **Ozark Air Lines** authorized to omit service to Alton-Wood River, Ill., on all flights over two daily round trips.

EXAMINERS' REPORTS

United Air Lines and Trans World Airlines recommended by Examiner William J. Madden for carriage of local traffic between Los Angeles and Las Vegas, Nevada.

Cuba Aeropostal, S. A., found by Examiner Curtis C. Henderson to be holding out Havana-Miami cargo services on common-carrier basis in violation of Act; cease and desist order recommended.

CAB CALENDAR

Dec. 9—Oral argument before the Board in Frontier Airlines Renewal Case (former Arizona Airways routes only). Washington, D. C. (Docket 4522 et al.)

Dec. 29—Hearing in Caribbean American Lines, Inc. Enforcement Proceeding. Washington, D. C. (Docket 4657).

Jan. 6—Hearing resumed in United Air Lines Restriction Case. Washington, D. C. (Docket 2190).

Jan. 6—Hearing in Reopened Southern Service to the West Case. Washington, D. C. (Docket 1102 et al.).

CAB Cracks Down On Travel Agency

Exercising its new powers over ticket agents for the first time, CAB's enforcement office has instituted a proceeding against alleged "unfair and deceptive practices" of Skycoach Airlines Agency, Inc.

Referring to operations of the firm in Philadelphia, Wilmington (Del.), and Baltimore, CAB officials charged Skycoach with illegally holding out to the public that it is an air carrier.

CAB assumed jurisdiction over agents on July 14, 1952, when the Act was amended by Congress for that purpose. Previously, the Board had to resort to civil court actions in dealing with agents.

AS OF NOW . . . .

Best bet on the three cases involving **U. S.-ALASKA-HAWAII-PACIFIC** airline services going into public hearings is late spring, 1953. Though divided now, the cases may be consolidated into one large proceeding, if CAB approves requests of various airlines, including Pan American. Involved are certain temporary certificates of Pan Am, Northwest, and United, a TWA proposal for extension from Bombay to Tokyo, and numerous new route applications of large irregular lines. The temporary certificates expire at various dates in 1953.

The so-called **NEW YORK-CHICAGO CASE** has been confined to applications for New York-Cleveland service by CAB and will be referred to in the future as the **NEW YORK-CLEVELAND CASE.** Returned to CAB by the courts, the case at one time threatened to expand to all parts of the country, but CAB ruled out expansion proposals and limited the proceedings to the single question of whether Capital, Northwest, or American should compete in the New York-Cleveland non-stop market with United.

Hearings in the **LARGE IRREGULAR AIR CARRIER INVESTIGATION,** now going on in Miami, are scheduled to move back to Washington for resumption on January 5. After the Washington session, they will move out to Los Angeles and later Seattle.

There are 30 applications pending before CAB for domestic **HELICOPTER SERVICES** and one involving Puerto Rican operations. Four local service airlines are among those filing for helicopter certificates—Southwest, Wiggins, Central, and Mohawk. There are no indications when any of these will be heard.

Mr. Herb Plambeck

Radio Station WHO Farm Service Director and authority on Iowa agriculture.

Rio the magnificent—one of the highlights of Herb Plambeck's tour of South America.

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Braniff does make the difference!

Ask Herb Plambeck of Des Moines—he just finished one of our Farm Friendship tours. Who's Herb Plambeck? Why, he's Radio Station WHO's gift to farm programs; past president of the National Farm Broadcasters Association; and a leader in his field.

Quite a traveler, too, this Mr. Plambeck. He was a war correspondent, later made his farm broadcasts from Germany, Britain, Holland, Luxemburg, Belgium, et al. He's been cited by foreign governments and handed all sorts of awards here at home.

Herb Plambeck is strictly on our side now. When we called to ask how he liked Braniff's South America, his answer was, "it's the trip of a lifetime." Herb enthusiastically recommends this flight to anyone interested in Latin America.

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HYDRAULIC ACTUATORS

BREEZE CORPORATIONS, INC., 41 S. Sixth St., Newark, N. J.

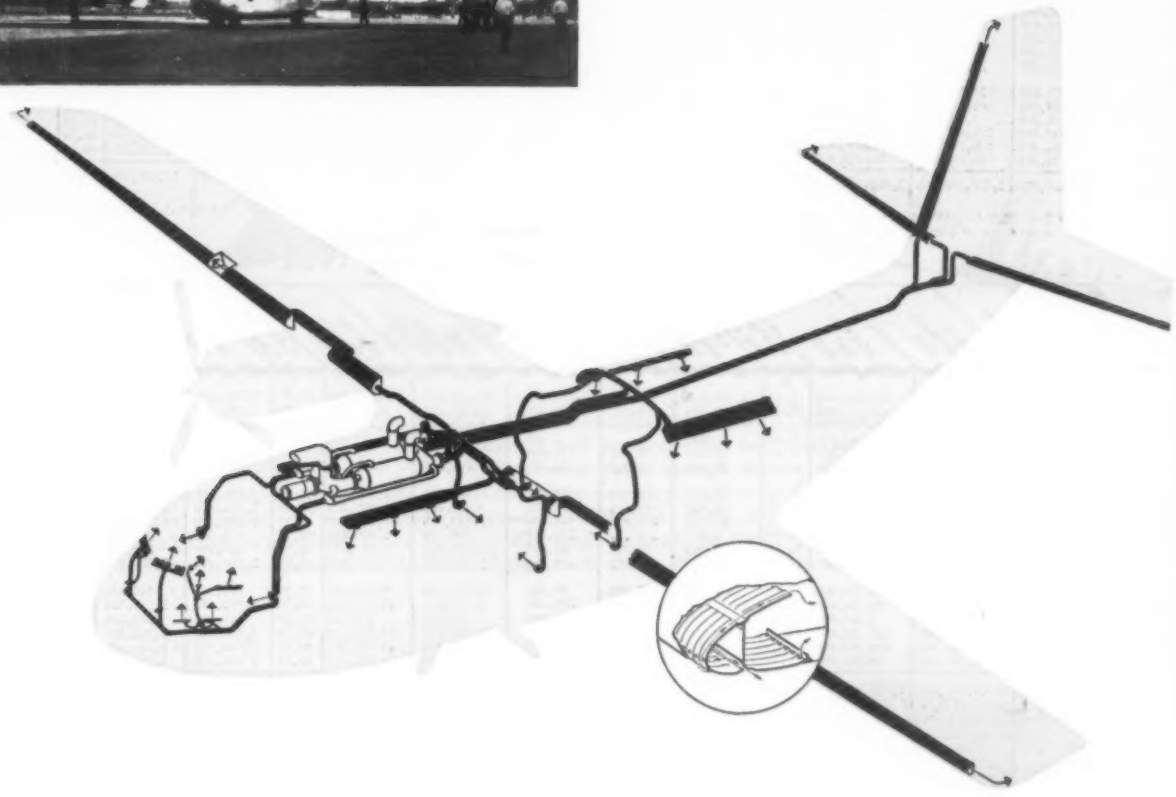
New terminal building at Baer Field, Fort Wayne, Indiana, cost $435,000.

Building for Tomorrow

Drive-in ticket office will be a first for United Air Lines when it opens in January, 32 miles south of San Francisco. Survey showed traffic in San Francisco area concentrated south of the city.

Tampa terminal building cost a million at Tampa International Airport, formerly Drew Field. The loading ramp ($800,000 more) is built to handle the largest transports or bombers. Tightly zoned open country surrounds the field.

versatility by CHASE



Here's extraordinary *versatility:* the Chase "Avitruc." It's a real workhorse, low slung for easy loading and unloading, with the ability to get into and out of tight spots too small for many aircraft. When necessary it can tow a 30,000 pound glider . . . And here is heating *dependability* to match: two Janitrol S-600 heaters provide a total of 1,200,000 Btu per hour for cabin heat, defrosting, and wing and tail surface anti-icing. Wherever the utmost in heating dependability is demanded, write "Janitrol" into the specifications.

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Summary of U.S. Domestic Airline Traffic For Aug., 1952

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor %	Mail Ton-Miles **	Express Ton-Miles	Freight Ton-Miles	Total Ton-Miles Rev. Traffic	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
American	472,101	269,601,000	356,792,000	75.56	1,325,723	713,527	3,558,948	31,206,579	46,514,522	67.09	7,783,731	7,751,731	99.43
Braniff	91,605	31,387,000	50,226,000	62.49	134,134	84,322	208,383	3,428,802	6,173,025	55.54	1,471,762	1,503,400	96.65
Capital	196,888	62,242,000	105,600,000	58.94	144,940	204,860	321,923	6,618,217	13,847,855	47.79	2,463,121	2,431,350	98.74
Caribair	10,291	818,000	1,577,000	51.87	850	....	2,955	69,434	156,768	44.29	60,170	51,188	99.03
C & S	46,561	17,470,000	28,604,000	61.07	67,474	76,629	124,439	1,942,448	3,501,156	55.48	836,046	834,928	99.53
Colonial	31,597	7,629,000	13,693,000	55.71	9,927	8,945	15,058	781,429	1,443,187	54.15	405,589	371,265	99.72
Continental	32,802	13,054,000	21,088,000	61.90	39,490	16,116	65,119	1,372,286	2,447,920	56.06	682,151	678,497	99.98
Delta	81,061	35,550,000	54,274,000	65.50	149,110	88,390	353,848	4,002,319	6,505,852	61.52	1,476,319	1,469,277	99.53
Eastern	325,237	153,274,000	274,923,000	55.75	428,868	298,423	530,245	16,756,838	36,621,572	45.76	5,276,873	5,427,775	99.27
Hawaiian	49,153	7,011,000	10,301,000	68.06	1,898	....	131,145	670,303	1,211,272	55.34	470,879	294,490	99.85
MCA*	19,089	5,855,000	11,032,000	53.07	18,002	10,501	15,438	603,834	1,107,138	54.54	389,547	390,760	99.03
National	54,329	33,134,000	51,529,000	64.30	92,119	33,470	344,917	3,833,428	6,516,506	58.83	1,211,016	1,197,972	98.76
Northeast	61,452	12,285,000	18,597,000	66.06	11,561	13,687	33,498	1,171,100	2,095,471	55.89	552,778	550,825	95.46
Northwest	88,028	61,770,000	85,206,000	72.49	261,376	142,065	309,736	6,836,028	10,195,641	65.09	1,561,671	1,571,739	96.56
Trans Pac.	24,309	3,602,000	5,615,000	64.15	1,555	147	5,853	267,821	487,528	54.93	200,641	145,578	99.67
TWA	217,860	179,647,000	223,149,000	80.51	751,000	454,625	1,337,362	19,725,918	28,028,177	70.38	4,811,861	4,831,198	99.28
United	354,200	236,033,000	297,037,000	79.46	1,667,025	764,127	2,262,880	27,303,085	44,340,008	61.58	6,745,558	6,681,092	99.59
Western	72,675	29,400,000	40,753,000	72.14	99,776	45,826	79,296	3,031,819	4,429,484	68.45	1,102,304	1,105,109	99.40
TOTALS	2,229,738	1,159,762,000	1,649,996,000	70.29	5,204,828	2,955,680	9,701,343	129,421,688	215,623,082	60.02	37,502,023	37,291,104	99.13

* Braniff-Mid-Continent merger was effective August 16, 1952. Figures shown above for MCA are for the period August 1-15, and do not include operations of local service segment, route 106.

U. S. Domestic Airline Traffic for July 1952

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor %	Mail Ton-Miles **	Express Ton-Miles	Freight Ton-Miles	Total Ton-Miles Rev. Traffic	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
American	444,144	256,570,000	355,621,000	72.15	1,310,436	635,927	3,283,583	29,656,173	46,403,954	63.91	7,703,466	7,707,215	99.06
Braniff	68,576	24,521,000	40,243,000	60.93	118,979	69,240	178,825	2,712,458	5,228,061	51.88	1,089,029	1,100,683	98.73
Capital	184,381	58,849,000	106,926,000	55.04	144,893	179,429	281,320	6,229,670	13,971,834	44.59	2,517,309	2,502,152	98.35
Caribair	10,094	818,000	1,583,000	51.67	805	....	4,168	70,321	157,051	44.78	60,849	59,172	99.75
C & S	44,396	16,084,000	28,686,000	56.07	65,485	76,221	111,874	1,793,255	3,510,031	51.09	841,093	839,046	99.76
Colonial	27,512	6,717,000	13,316,000	50.44	10,184	6,747	11,525	686,405	1,406,361	48.81	390,654	351,323	99.23
Continental	30,813	12,279,000	21,405,000	57.37	37,387	16,515	62,766	1,292,024	2,475,986	52.18	681,849	666,531	99.99
Delta	80,317	35,330,000	54,905,000	64.35	148,929	82,224	336,731	3,955,141	6,597,219	59.95	1,511,510	1,498,845	99.69
Eastern	310,952	144,643,000	296,639,000	53.64	417,396	276,671	545,869	15,833,656	36,005,620	43.97	5,228,883	5,395,288	99.41
Hawaiian	41,897	5,969,000	8,604,000	69.37	1,883	....	137,277	598,399	1,018,620	58.75	395,681	293,216	96.61
MCA*	39,173	12,073,000	23,057,000	52.36	35,708	20,089	42,262	1,252,505	2,313,470	54.14	819,993	807,402	99.88
National	51,755	32,594,000	52,673,000	61.88	93,044	33,083	409,114	3,848,011	6,654,710	57.82	1,228,768	1,210,712	99.59
Northeast	55,287	11,062,000	18,575,000	59.59	11,973	11,689	28,894	1,053,239	2,063,022	51.05	563,345	548,532	96.86
Northwest	83,179	58,735,000	85,354,000	68.81	241,597	122,214	266,485	6,257,104	10,337,169	60.53	1,550,680	1,551,248	99.13
Trans Pac.	23,929	3,621,000	5,655,000	64.03	1,814	201	5,995	273,007	484,354	56.37	201,962	129,448	99.71
TWA	203,408	169,435,000	213,240,000	79.46	761,595	432,333	1,126,937	18,529,939	27,133,926	68.29	4,702,934	4,732,265	98.75
United	327,590	221,614,000	294,292,000	75.30	1,620,774	703,048	2,144,185	25,680,151	43,884,511	58.52	6,696,751	6,634,125	99.66
Western	66,713	26,587,000	39,843,000	66.73	96,862	40,759	79,600	2,755,260	4,325,925	63.69	1,081,631	1,086,182	99.05
TOTALS	2,094,116	1,097,501,000	1,660,617,000	66.09	5,119,744	2,706,390	9,057,410	122,476,718	213,971,824	57.24	37,266,387	37,113,385	99.17

* Figures do not include operations of local service segment (route 106) awarded MCA by CAB in the Parks Air Lines Investigation Case. Figures covering operations of route 106 are carried separately on local service airlines' summary sheets.

** Includes air parcel post.

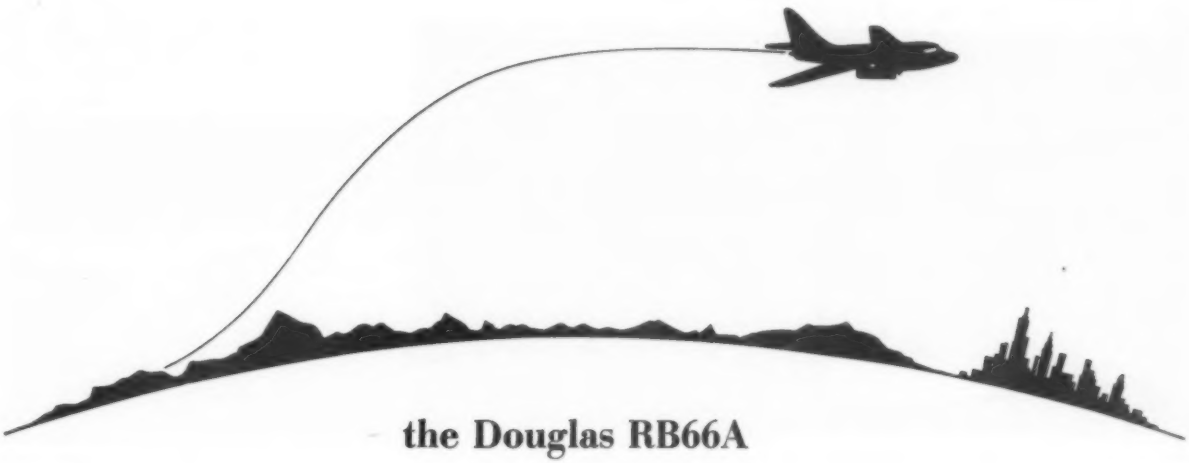
NOTE: Above figures include both scheduled and non-scheduled operations.

U. S. All-Cargo Operations for Quarter Ending June, 1952

Airlines	TRAFFIC: Freight Ton-Miles	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed	REVENUES & EXPENSES: Total Operating Revenues	Freight Revenues	Non-Scheduled Transport Rev.	Total Operating Expenses	Aircraft Operating Expenses	Ground & Indirect Expenses	Net Operating Income Before Income Taxes
							April, 1952						
Fly. Tiger	2,595,735	3,405,396	76.22	523,907	464,486	96.30	$ 425,634	$ 412,649	$ 11,051	$ 495,027	$ 312,090	$ 182,937	$ -69,393
Riddle	905,825	1,084,533	83.52	187,189	140,820	100.00	133,765	130,863	....	147,947	109,670	44,277	-14,182
Slick	3,845,730	4,731,363	81.30	713,550	720,466	85.74	999,969	555,194	308,161	929,188	517,287	411,901	70,781
US Airlines	Figures not yet available.												
TOTALS	7,347,290	9,221,292	79.68	1,424,646	1,325,772	90.95	1,559,368	1,098,706	319,212	1,572,162	933,047	639,115	-12,794
							May, 1952						
Fly. Tiger	2,959,669	3,560,902	83.12	547,831	605,188	88.97	$ 528,364	$ 499,597	$ 12,973	$ 494,364	$ 319,006	$ 175,358	$ 34,000
Riddle	783,660	906,903	86.41	161,068	145,514	100.00	131,650	118,340	....	127,346	89,255	38,091	4,304
Slick	3,810,966	4,252,873	89.61	597,975	614,769	72.10	975,647	582,659	301,673	874,587	522,533	352,054	101,060
US Airlines	Figures not yet available.												
TOTALS	7,554,295	8,720,678	86.62	1,306,874	1,365,471	82.55	1,635,661	1,200,596	314,646	1,496,297	930,794	565,503	139,364
							June, 1952						
Fly. Tiger	2,990,440	3,440,652	86.91	529,331	598,050	87.62	Under CAB regulations the airlines are not required to file a report of						
Riddle	698,210	845,371	82.59	153,105	140,820	100.00	revenues and expenses for the month of June, but instead file a statement						
Slick	3,611,996	4,466,671	80.86	613,401	646,956	76.68	for the quarter ending June.						
US Airlines	Figures not yet available.												
TOTALS	7,300,646	8,752,694	83.41	1,295,837	1,385,826	83.70							
							Quarter Ending June 30, 1952						
Fly. Tiger	8,545,844	10,406,950	82.12	1,601,069	1,667,724	90.46	$ 1,694,891	$ 1,420,540	$ 32,303	$1,442,557	$ 915,993	$ 526,564	$ 252,334
Riddle	2,387,695	2,836,807	84.17	501,362	427,154	100.00	355,124	357,910	....	425,772	293,149	132,623	-70,648
Slick	11,268,692	13,450,907	83.78	1,924,926	1,982,191	78.55	2,146,455	1,684,430	78,440	1,870,095	1,066,644	803,451	276,360
US Airlines	Figures not yet available.												
TOTALS	22,202,231	26,694,664	83.17	4,027,357	4,077,069	85.67	4,196,470	3,462,880	110,743	3,738,424	2,275,786	1,462,638	458,046

NOTE: Traffic figures are exclusive of defense contract operations. However, financial figures, i.e., total operating revenues and net operating income, reflect the net result of defense contract operations. This net figure is reported under Incidental Revenues,

U.S. Air Force's new twin jet
reconnaissance aircraft



the Douglas RB66A

Built to perform in the stratosphere, or to scrape treetops in low-level missions, the new U.S. Air Force RB66A will be one of the most versatile photo-reconnaissance planes ever designed.

Complete performance data must still remain secret, but the Air Force permits release of the information that the Douglas RB66A will be in the 600 to 700 mph class—with range enough to fly deep into enemy territory, and return. Powered by twin jets, slung in pods below the wing outboard of the fuselage, RB66A will carry the most modern photographic equipment, for accurate reports on operations.

Design of RB66A is another example of Douglas leadership in aviation. Planes that can be produced in quantity to fly *further and faster with a bigger payload* is a basic concept at Douglas.

Depend on *DOUGLAS* **First in Aviation**

operating income, reflect the net result of defense contract operations. This net figure is reported under Incidental Revenues,

International Report

NEWLY APPROVED Otter shown as seaplane.

Otter Landplane-Seaplane Approved

The de Havilland Aircraft of Canada's Otter (see photo) has received its official type approval as a landplane and seaplane, thereby becoming the first single-engine aircraft to qualify for approval under the ICAO category D airworthiness requirements.

A larger version of the well-known Beaver, the Otter has been ordered by the Royal Canadian Air Force, the Ontario government, transport companies in Quebec, British Columbia and Yukon territory, and by mining companies. Negotiations for foreign export are in "an advanced stage" and orders from European and South American countries are expected "very soon." Latest performance data for the Otter are:

	Landplane	Seaplane
Gross Weight	7200 lb.	7200 lb.
Max. True Level Speed		
Sea Level	154 mph	148 mph
5,000 feet	161 mph	155 mph
True Cruising Speed (400 BHP 66% T.O. Power)		
Sea Level	133 mph	126 mph
5,000 feet	140 mph	132 mph
Economic True Cruising Speed (325 BHP)		
Sea Level	124 mph	115 mph
5,000 feet	130 mph	121 mph
Stalling Speed (EAS)		
Flaps Up	67 mph	67 mph
Flaps "Landing"	54 mph	54 mph
Take-off to Clear 50 ft. Obstacle (still air, without assist.)		
Minimum Distance	970 ft.	1380 ft.
Distance-ICAO Technique	1240 ft.	1650 ft.
Landing Over 50 ft. Obstacle Distance-ICAO Technique	1090 ft.	1305 ft.
Rate of Climb (initial)	1125 fpm	1070 fpm
Rate of Climb at Max. Continuous Power		
Sea Level	990 fpm	930 fpm
5,000 feet	950 fpm	890 fpm
Service Ceiling / Absolute Ceiling Estimated	20,000 ft. / 21,000 ft.	20,000 ft. / 20,000 ft.
Range at 5,000 feet		
Maximum Range	1000 miles	950 miles
Cruising Range	900 miles	850 miles

Note:—Maximum and cruising ranges include allowance for: (1) 10 minutes warm-up and take-off; (2) climb to 5,000 feet, and (3) fuel for 45 minutes flight at cruise power in reserve.

Trans-Canada Orders 15 Viscounts for '54

Trans-Canada Air Lines has ordered 15 Vickers Viscounts for delivery starting in the fall of 1954. Valued at $11,500,000, this is the largest peacetime dollar order ever placed for British aircraft.

Gordon McGregor, president of TCA, said the contract was signed only after the most exhaustive analysis of the Viscount's performance potentials and a comparison with other production aircraft, including the Convair 340. He added that the acquisition of the over 300-mph pressurized turboprop transports would be expected to keep TCA abreast of Canada's growing air traffic, which rose 18% in volume in 1951 as compared to 1950 and already has risen another 14% this year with the upward trend still continuing.

TCA plans to use the Viscounts to supplement its Douglas DC-3's and Canadair North Stars on major intercity services (the eight Lockheed Super Constellations on order will be used on overseas routes). The turboprop transports will fly into New York from Montreal and Toronto, thus bringing the first commercial turbine operations to the United States; Viscounts will probably also serve Cleveland and Chicago.

Other U.S. cities may use the British plane if a projected demonstration tour in 1953 takes place. The demonstation program largely depends on whether British European Airways will make one of its Viscounts available.

Brazil Negotiating For British Transports

Several Brazilian airlines are actively interested in acquiring British jet transports. Brazil's shortage of dollars coupled with Britain's apparent willingness to accept payment in kind instead of in cash (the Brazilian Air Force is to receive 70 Gloster Meteors in exchange for Brazilian cotton) makes it probable that at least some of the present negotiations will be firmed up.

• **Panair do Brasil,** long reported interested in the Comet, is likely to order three or four Mark II's to replace early-model Lockheed Constellations on the route to Europe (where other operators have introduced or will introduce Douglas DC-6B's, Super Constellations, and Comets).

• **Loide Aereo Nacional** is interested in acquiring six Vickers Viscounts. Hitherto a purely domestic operator, this company expects to be authorized to take over Cruzeiro do Sul's permit for the Brazil-New York run.

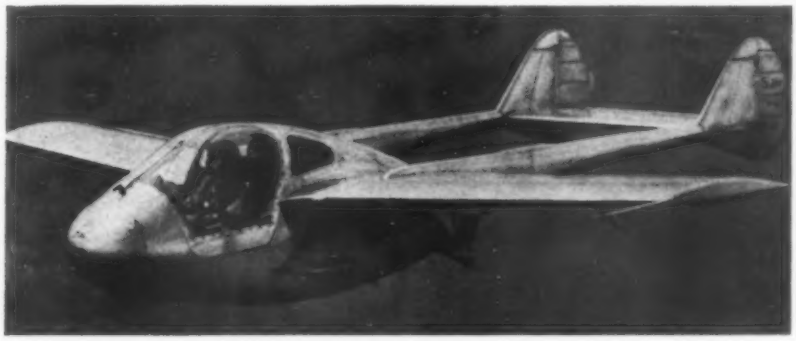
• **Viacao Aerea Riograndense (VARIG),** which at present operates internationally from Porto Alegre to Montevideo and hopes soon to serve

Buenos Aires, is believed to have arranged to buy three Comets and six Viscounts.

• **Cruzeiro do Sul,** which recently ordered four Convair 340's, is also interested in the Viscount for its international services.

• **Aerovias Brasil** would like to substitute Comets for DC-4's on its Brazil-Miami route.

The only other major operator in Brazil, Viacao Aerea Sao Paulo (VASP) has no immediate plans for the acquisition of jetliners. The company is buying additional SAAB Scandia equipment to replace some of its DC-3's next year.



French Fly SIPA 200 Jet Prototype

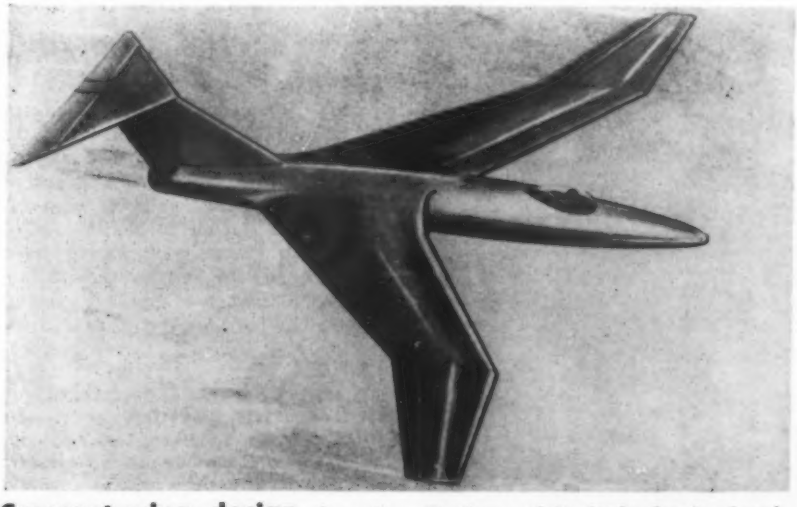
Described as the world's first side-by-side two-place, all-metal light jet aircraft, the SIPA 200 Minijet (see photo) built by Societe Industrielle pour l'Aeronautique (SIPA) is designed for liaison and primary training.

The first prototype is now flying and a second is under construction; negotiations are taking place with the French government for a third to be built. Production plans have not yet been settled but, in the event of 100 being built, the price would probably be about $20,000.

Powered by a 330-pound static thrust Turbomeca Palas, the Minijet's performance data is: maximum speed, 250 mph; cruising speed, 225 mph; take-off run, 1,000 feet; take-off distance to clear an 80-foot obstacle, 2,000 feet; range (without wingtip tanks), 350 miles.

Principal characteristics: span, 23 feet; overall length, 17 feet; height, 6 feet; wing area, 97 sq. feet; wing dihedral, 3 deg.; tailplane span, 6 feet 8 in.; fully-equipped empty weight, 950 pounds; take-off gross weight, 1,675 pounds.

Current development work includes the installation of a boosted Palas delivering 365 pounds thrust; blind flying instruments; electric starter; wingtip tanks to increase range to 470 miles; and a system to enable the hydraulic pump for the landing gear retraction mechanism to be coupled to the turbojet.



Crescent-wing design from Short Brothers and Harland's drawing board.

INTERNATIONAL BRIEFS

Forthcoming abolition of the 70¢ **embarkation fee** levied on air passengers leaving the United Kingdom was indicated by a delegate at the recent International Union of Official Travel Drganizations meeting in Naples.

•

The **South African Air Force squadron** in Korea will begin conversion from North American F-51's to F-86 Sabrejets in mid-December.

•

The Japanese government plans to establish an **aviation school** at Yaizu airport, Central Honshu, for flying, communications, and maintenance training.

•

Britain's General Electric Company (not connected with the American firm of the same name) is working on the development of **guided weapon equipment.** A GEC research unit is to be established at the Long Range Weapons Establishment in South Australia.

•

A full-scale assembly of the **International Civil Aviation Organization** will be held next year in Brighton, England, starting June 16.

•

Rolls-Royce Ltd. plans to establish its own organization in Australia **to service jetliners** powered by R-R gas turbines. Hitherto Rolls-Royce engines have been manufactured in Australia under license, but the company itself has not set up an Australian branch.

•

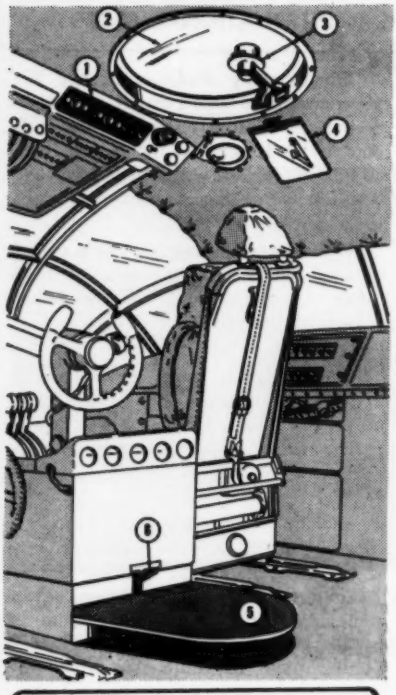
Transportes Aereos Salvador, a **Brazilian irregular carrier** operating in the state of Bahia, has been authorized by the Brazilian Air Ministry to operate on a scheduled basis. The first of the airline's three de Havilland Heron four-engine transports recently arrived at the company's Salvador base.

•

The Japanese Transport Ministry has recently authorized three companies to perform local service and general air operating work domestically: **Japan Helicopter Transport Co.,** Tokyo; **Far Eastern Aviation Co.,** Osaka; and **International Aviation Co.,** Saitama. Earlier, an operating permit had been granted to **Aoki Aviation Co.,** Tokyo.

•

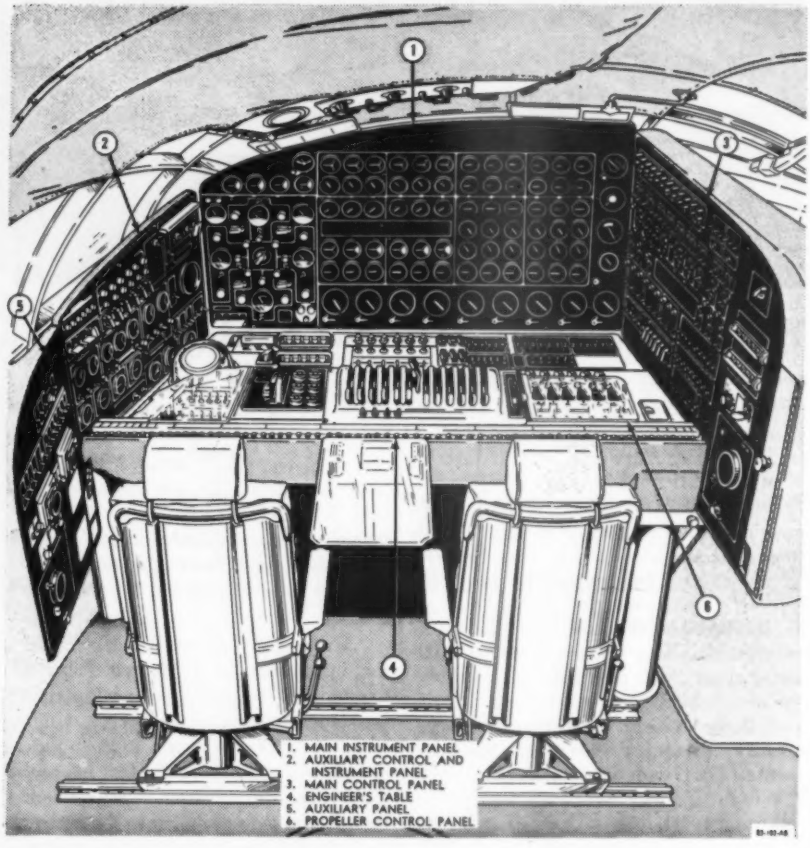
The Dominican Republic has become the eighteenth nation to sign the new **Rome Convention on liability** for damage caused by foreign aircraft to third parties on the surface. The convention comes into force as soon as five of the signatory nations have deposited their instruments of ratification.



1. NAVIGATOR'S ASTRODOME CONTROL PANEL
2. ASTRODOME
3. ASTRO COMPASS SUPPORT
4. CLIP BOARD
5. SIGHTING PLATFORM
6. SIGHTING PLATFORM CONTROL LEVER

12-127-A

Adjustable sighting platform (left) in B-36H flight deck helps navigator to position himself at correct height while using astrodome for celestial sightings. Sketch below shows two-station engineer's panel, facing aft, the main innovation in this model.



1. MAIN INSTRUMENT PANEL
2. AUXILIARY CONTROL AND INSTRUMENT PANEL
3. MAIN CONTROL PANEL
4. ENGINEER'S TABLE
5. AUXILIARY PANEL
6. PROPELLER CONTROL PANEL

The Production Picture

Hull center section of Convair R3Y-1, still on its cradle, is eased into mating position next to the forward part of the hull. Separate sections are spliced together with bolts and rivets to form one unit after final positioning.

Production Spotlight

F-94C Orders Cut Back 35%

A 35% reduction in the number of Lockheed F-94C all-weather interceptors on order has been announced by the USAF. Spokesmen said Lockheed would complete production on all F-94C's on which work had already been started but that all others had been cancelled. They give newer interceptors nearing production as the reason for the cutback in Starfires.

Compare 'Copters With Cars: Pogue

The nation's helicopter manufacturers, who have delivered close to 500 commercial rotary-wing aircraft since 1946, have a total backlog exceeding half a billion dollars, according to L. Welch Pogue, legal advisor to the Helicopter Council of the Aircraft Industries Association.

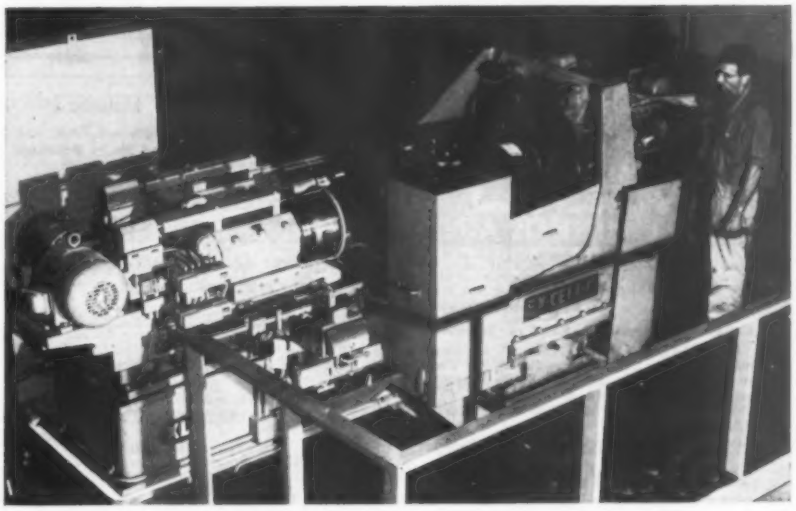
Pogue, who visualizes expanding uses for the helicopter within the next few years, maintains that the speed of rotary-wing craft is unjustifiably being compared with that of the airplane. "The greatest air need at the moment," he says, "is for a slow-flying vehicle which can have access to the very center of our dreadfully congested metropolitan areas." He contends that for this reason a more accurate comparison would be with surface transportation, such as the automobile, truck or bus.

Odlum Sees 200 Passenger Jet

Consolidated Vultee board chairman Floyd B. Odlum states an American jet transport, capable of carrying 200 passengers across the continent non-stop in less than five hours at a "very low" seat-mile operating cost, could be ready by the middle of 1955 if the military would release the necessary plant space and production workers. The craft Odlum is discussing is a transport version of Convair's experimental XB-60 jet bomber.

Munitions Board Changes

John D. Small, Munitions Board chairman, has announced that he is planning to leave his post within the next few weeks. Meanwhile, John E. Wood, former consultant to the DPA Aircraft Production Board, has taken over the post of Munitions Board vice chairman in charge of production. He is a former General Motors official.



Boring and facing unit knocks 87% off time required to do all internal machining on J-47 jet engine aft frames. Built for Solar Aircraft, machine tool weighs 19 tons and costs $90,000. Operator pushes a button to start unit through its cycle.

PRODUCTION BRIEFS

An attempt by an AFL union to take over the CIO-Autoworkers' bargaining right for **production workers at the General Electric J47 plant** in Lockland, Ohio has failed. In an NLRB election, the employes gave the UAW-CIO 2,641 votes, the United Auto Workers-AFL 455.

•

Beech has received a Navy order for a "substantial" number of SNB-5P reconnaissance planes. The craft is a military version of the commercial D18S Twin-Beech.

•

The Allison-owned **Convair Turboliner,** which now is powered by four 3,000 horsepower T-38 turboprops, instead of the 2,750-hp models installed when the plane was first flown late in 1950, currently has been in the air more than 159 hours in at least 158 flights.

•

A program whereby **Westinghouse Electric Corp.** would take long-term leases on a portion of airfields near its jet engine manufacturing facilities and build hangars and test buildings at its own expense is being considered. Military planes would continue to be used as test beds for the Westinghouse power plants.

At present Westinghouse is using the New Castle, Del., County Airport but is also thinking of sites near the Aviation Gas Turbine Division plants in Lester, Pa., and Kansas City, Mo. Four airport sites in the Kansas City area and Philadelphia International Airport are being studied.

•

The engine division of Kaiser-Frazer Corp. has become a qualified **licensee for the Wright R-1300 engine,** the first wholly K-F built power plant having successfully completed its 150-hour Air Materiel Command endurance test. K-F previously had assembled several hundred Cyclone 7's using parts furnished by Curtiss-Wright's Wright Aeronautical Division.

•

After 36 years in the aircraft industry, **John K. Northrop has retired** as president of Northrop Aircraft, giving progressive impairment of his health as the reason. He disclosed no plans beyond a vacation. Meanwhile, the company's board of directors elected board chairman Oliver P. Echols to take over the additional duties as president.

THE BULLETIN BOARD

Undisplayed Advertising: $1.00 per line, minimum charge $4.00. Cash with order. Estimate 30 capital letters and spaces per line; 40 small lower-case letters and spaces per line. Add two lines if Box Number is included in lieu of advertiser's name and address.

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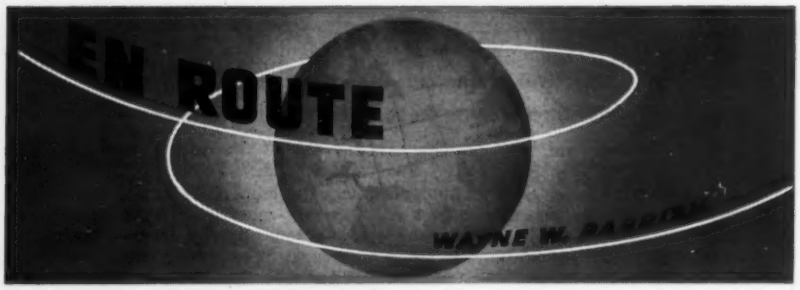

Statues Again. Pardon me for jumping all over the globe with this page, but I've run into something that deserves telling without delay.

A few weeks ago **Art Kelly,** Western Air Lines' vice president-sales, who is also now president of the Air Force Association, came into my office with a box.

With flourish and polish, as befits an airline salesman, he opened the box and handed me two plaster statues, each about eight inches high. As you can see for yourselves on this page, they portrayed an airline captain before and after a flight.

Art had run into the guy who makes these figures and got very enthusiastic about his talents. Less than a week later **George Masters,** publicity director for Northwest Airlines, dropped into the office, noted the two pilot figures on the mantle over my desk, and said my set wasn't complete. He said he would see that I got a pair of stewardesses (in plaster, you understand).

✣ ✣ ✣

Capt. Tirrell. So the next thing I know, into my office comes the guy who makes these things, to deliver the stewardesses which Masters had ordered. He's **Capt. Pax Tirrell** who has been flying for Northwest Airlines for eight years. So I got from Tirrell the story of how he set up a bustling sideline business making caricatures of airline crews.

It was less than two years ago that Tirrell, who had never taken an art lesson and had never tried his hand at anything artistic, was idling around his house and picked up some clay his kids had been playing with. He began forming it into a face and, much to his amazement, he created quite a good caricature. From that chance experiment he molded more figures and in no time at all he got into a full-size business.

Seems that he was once a die-maker, so he knew all about molds. He made his own molds, developed some new tricks and techniques (which he won't reveal) in working commercial plaster, and began a production line. Now he has eight people working for him and is selling airline crew figures like hot-cakes to airline folk all over the country. He operates at 6328 21st Avenue South, Minneapolis, Minn., and charges only $5.00 a pair for the airline crews. (Free ad.)

✣ ✣ ✣

Birth Date. Now only 35, his first love is still flying, but he's expanding his business as time permits to undertake commercial displays for Northwest and other companies. He says he can't do any serious studies—everything must be caricature. He has a lot more trouble with feminine figures than he does with men, but this shouldn't cause him any concern because this problem has plagued hundreds of millions of guys through the centuries anyway, so he's not alone.

The reason I'm rushing this into print in this issue, December 8, is that on December 8, 1917, Brother Tirrell saw the first light of day at Benton Harbor, Michigan. This was during World War I and his father was naturally perturbed by the war, so he named his son Pax, the Latin word for peace.

Tirrell points out that on a later December 8, in 1941, the U. S. declared war on Japan, so he isn't sure his birth date necessarily means peace, but there it is. In any event, the boy makes a neat caricature in plaster and we predict an ever-expanding business for his unusual talents.

✣ ✣ ✣

CLEMENTINE . . . in solid lead.

More Statues. Now that we are started on statues, I might as well give you the latest chapter in my trek into Yugoslavian art. You old-time readers will perhaps recall my buying a ceramic statue of a Dalmatian coast peasant girl in Split, Yugoslavia, last year, and how it got broken into bits on the way to Washington. I had named this fragile little bit of art Lolita.

In due time the sculptor, Pavao Peric, learned that Lolita had broken. This broke up Pavao, who was even more broken up because he had made an unprofitable art showing in Austria. (Seems like everybody in that part of Europe loves art but has no mazoola to pay for it.) So Brother Peric (pronounced Perich) wrote to me from Zagreb that he was making a replacement for Lolita and he guaranteed it wouldn't break this time.

He was sure right on that one. After it arrived I could see how it wouldn't break, but I marveled that it hadn't sunk the ship it came on. It's solid lead, with silver trimmings. I haven't figured out a final name for this 20-inch-high heavy-weight lass from Dalmatia, but I've been tinkering with something like Clementine. Just for contrast, you know. Got any ideas?

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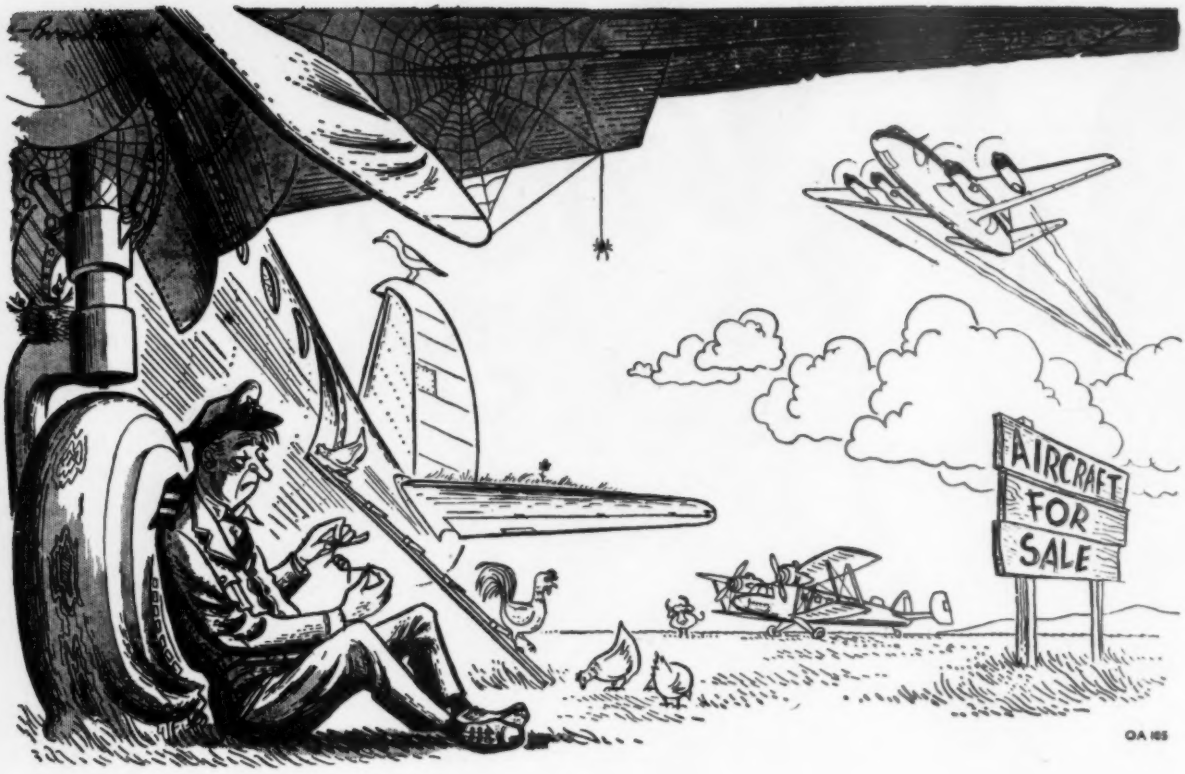


The Airline Operator who missed his TURBOPROPORTUNITY

To-day is no time to think about turboprops, it's the time to act. The Vickers Viscount is more than "in the air" — a fleet is in production for British European Airways. The Viscount's turn of speed and greater comfort only begin the story, for its operating advantages at medium and short ranges are equally compelling.

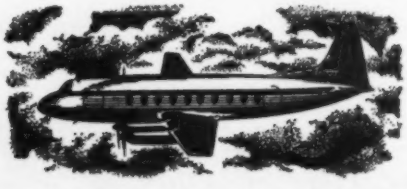
FOUR ENGINE SAFETY

The Viscount can take off on three of its four Rolls-Royce "Dart" engines and fly, or "stack" on two. These turboprops run so smoothly that serviceability on all counts — engine, airframe and accessories—is exceptional. Moreover, they run on kerosene fuel.

THE PASSENGERS' CHOICE OF AIRLINER

All the fare-paying passengers so far carried in the Viscount have remarked on its freedom from vibration and its quietness, and on the lack of fatigue at the end of their flight. Pilots say the same and also praise its all-round docility in the air.

That's not all—but enough to make it clear that to-day *no major airline dare overlook the Viscount's proven performance.*



VICKERS-ARMSTRONGS LIMITED, AIRCRAFT DIVISION, WEYBRIDGE, SURREY, ENGLAND

News At Deadline

F-89 Not Removed From USAF Program

A recent report that the USAF had decided to wipe out the Northrop F-89 program (AMERICAN AVIATION, November 24) has proved to be false. AMERICAN AVIATION regrets the inaccuracy of its information which, although obtained from a highly placed and usually reliable source, was apparently a misinterpretation of a decision to eliminate just one model of the Scorpion, the F-89F. One prototype of the "F" was under construction when the USAF decided to eliminate it from its plans.

Under Secretary of the Air Force Roswell L. Gilpatric has revealed that modifications designed to correct a faulty wing structure in the F-89 will be made in the "C" and "D" models. This will delay the delivery of the first "D" some five months, but the complete "D" program should be finished on schedule by July, 1955.

Port of New York Studies 'Copter Trends

Conclusions of a Port of New York Authority $80,000 survey released December 3 predicted helicopter and heliport design trends in 1960 would be as follows:

- **Expected initial costs** of commercial helicopters: $165,000 to $185,000 for 15- to 21-place machines.
- **When design simplification** trend begins about 1960, direct costs per seat-mile should range between 5.5 and 5.8 cents; after 1965 with 30- to 40-place craft: 4.5 to 5 cents; with ramjets: 3.5 cents.
- **Continued expansion of payload,** speed, and range achieved under conditions of military urgency to give increased complexity until 1960—then simplification will dominate.
- **Commercial types** cannot be expected before 1958-60.
- **Heliports** will be so expensive in downtown sites that they will sooner or later be acquired and constructed with joint municipal, local, or Federal support. (No heliport size recommendation was released.)

USAF Plans to Ease Tapering Off

The problem of what to do with aircraft production capacity after the tapering-off period begins during 1954 will be met by the USAF in three ways, according to Under Secretary Roswell L. Gilpatric.

Plans include: assignment of modification work to manufacturers; jet overhaul work for engine builders; "dual plant" operations to keep tool lines intact.

Fiscal 1954 budget provides for production of about 3,500 planes, a sharp drop from the number scheduled to be purchased from fiscal 1953 funds.

Navy Cuts Back Three Plane Types

Production cutbacks have been announced for the Douglas AD-5 Skyraider (13%), the North American FJ-2 Fury (33%), and the Grumman F9F-6 Cougar (18%). Cuts will be made at the tail end of currently scheduled production, to reduce the number of aircraft which would have relatively short service life.

The cut will involve some reshuffling of engine schedules. Reduction in the number of North American FJ-2's will involve a cut in General Electric J47-GE-2. The successor model FJ-3 will have a Wright J65 Sapphire. The engine involved in the Grumman F9F-6 is the Pratt & Whitney J48-P-8. Grumman will continue to turn out F9F-7's which are powered by Allison J33-A-16 engines.

Eastern Forecasts Action In Engineers Strike

The walkout of 160 flight engineers on December 1 will force Eastern Air Lines to "take actions which are regretable," according to E. V. Rickenbacker, EAL president. Rickenbacker cited the carriers "obligations to the American people" as the reason for the unspecified measures. The strike of the EAL chapter of the AFL-Flight Engineers International Association was the first on the airline since 1939. The strike, centered around wage demands, has cut Constellation service, but some passengers are being taken care of by Martin 4-0-4's and Douglas DC-4's.

USAF Orders Military Jet Transport Studies

Contracts which may lead to a design competition for a military jet transport have been let by the USAF to the Lockheed Aircraft Corp., Boeing Airplane Co., and Consolidated Vultee Aircraft Corp., according to Lt. Gen. Joseph Smith, Commanding General, MATS. General specifications, drawn up about a year ago, include a normal pay load of 25-30,000 lbs., a normal range with payload of 2,200 nautical miles, and a normal cruising speed of 550 knots.

Turboprop Test Funds Asked For Prototypes

A budget request of approximately $1.6 million for the fiscal year ending June 30, 1954, has been adopted by the CAA's Prototype Aircraft Advisory Committee. A similar sum was striken from the fiscal 1953 budget by the Congress after having been approved by the Bureau of the Budget.

Prototype group, holding its first meeting in nearly a year, approved the following for inclusion in its fiscal 1954 request:

- **Modification and instrumentation** for 75 hours of CAA airworthiness tests and 75 hours of operational tests on an unspecified turboprop transport.
- **Modification and instrumentation** of two F3D's and one AVRO Liner to run air navigation tests.
- **Special ground tests.**

Airfreight Committee Urged By Slick

Creation of an Airfreight Advisory Committee, patterned after the industry advisory committee of the Department of Commerce, has been suggested by Thomas L. Grace, president of Slick Airways. Grace advocates the formation of such a committee in order to bring the needs of the airfreight industry to the attention of the military, and to increase the usefulness of the airfreight industry to the nation.

The Slick executive urged the creation of an all-cargo aircraft, declaring it is essential for efficient airfreight operation.

CAB Warns Pan Am: Reduce Break-Even Need

The CAB, "deeply concerned" with the break-even need in Pan American's Latin American Division, has proposed an additional $6 million in temporary mail pay for the division, but has ordered the line to take imediate economy steps, even to the extent of reducing services.

AOC Committee To Study Airport Use Charges

A committee of two has been appointed by the Airport Operators Council to make a report on airport use charges at the organization's annual meeting to be held in Kansas City, Mo., March 23-26. Members are Don. W. Martin, manager of Oakland Municipal Airport, and George M. Dixon, manager of San Francisco International Airport.

UAL Cuts Coach Seating from 66 to 54

United Air Lines has reduced the maximum number of passengers it will permit aboard its DC-4 coach flights from 66 to 54, in what the company described as a safety measure. United president W. A. Patterson ordered the cutback after a company analysis of tests and studies indicated to United that current high-density seating arrangements of coach aircraft "might cause undue congestion and thereby create a safety hazard."

At issue mainly is the problem of evacuation in the event of an accident. Civil Aeronautics Administrator Charles F. Horne answered the United action by stating that "improved crew training is most valuable in insuring rapid evacuation and that seat configuration is not as important." Horne claimed that the cut-back in seating by United reflects a "desire to provide a higher degree of evacuation safety than that required by existing regulations."

The problem led to a meeting on December 2 between Patterson, Horne, and their aides at CAA offices in Washington. Remainder of the airline industry and the Civil Aeronautics Board, although giving serious consideration to the issue, had no official comment to make.

Deliveries Delayed, Underway, and Finished

Deliveries of L-1049 Super Constellations to KLM will be delayed until July or August of 1953, according to information received from Europe. Convair 340 and DC-6A deliveries will follow in the fall. Seven more DC-6B deliveries, however, will come before the end of 1952, with three going to National Airlines, two to Western Air Lines, and two to Scandinavian Airlines System. TWA has now received all of its L-1049's, completing delivery of all equipment ordered so far by the line.

U. S.-Cuba Agreement

Agreement has been reached between the U.S. and Cuban governments on non-stop operations between New York and Havana (see page 67). As of January 1, 1953, National Airlines and CUBANA will once more be able to provide such service.

New Helicopter Engine

A new model engine for high-speed, high-power helicopter operations has been designed by Continental Aviation and Engineering Corp., of Detroit. New version of the Continental R975 is designed for use in the Piasecki HUP-2 and will be known as the R-975-42. Power will be 550 hp, as compared with the 525 hp of the earlier model.

Domestic and Internat'l Profits Up for Carriers

Third quarter reports indicate that the domestic scheduled trunks were well over the figures for both the preceding quarter and the corresponding quarter of 1951. Net operating income ran to $35 million, and total operating revenues to $210 million, according to CAB reports. Passenger revenues were 88% of the total revenues.

In the international field, U.S. carriers reported a profit for the first time this year, with a net operating income of $7.9 million for the quarter ending September 30. Passenger revenues hit $63 million, a gain of nearly $9 million over the preceding quarter, $8 million over similar period in 1951.

One Japanese Flag Carrier Recommended

There should be only one Japanese international air carrier, according to recommendations made by the Japanese Civil Aviation Council to Transport Minister Mitsujiro Ishii. The council also suggested the granting of a $55 million loan to that company during 1953-54 and 1954-55. Domestic carriers would be restricted to two.

Delay Frequency Change

The changeover from 3105 kc to 3023.5 kc as the common frequency for communications will take place on March 15, 1954, instead of on that date in 1953 as previously planned. The Federal Communications Commission order postponing the change resulted from industry objections.

Irish Plan Tourist Service Over Atlantic

Plans for transatlantic tourists service in April, 1953, by the Irish airline, Aerlinte Eireann Teoranta, have been revealed. Aircraft and crews from Seaboard and Western Airlines will be used. Aerlinte will control operations and carry out sales and traffic functions, while Seaboard will provide the DC-4's and all crews except cabin attendants.

ICAO Acts on High-Intensity Lighting

A standard for high-intensity approach lighting and new specifications for shorter runways have been drafted by ICAO's Aerodromes, Air Routes, and Ground Aids Division.

Lighting standard involves use of a line of lights along the continuation of the center line of the runway, with cross bars placed at intervals. The shorter runways reflect the fact that failure of engines on take-off is relatively rare; heavy paving therefore need not be extended as far as it has been in the past, although a "stopway" will be provided in case of emergency.

IATA Plans World-Wide Coach Services

World-wide tourists services by 1954, foreshadowed in 1953 by extension of trans-atlantic tourist operations beyond European gateways, was agreed upon at the IATA traffic conference meeting in Cannes, France. Half of the 2,500 planes in the member companies' fleets will eventually be adapted to coach operations as a result of the fare cuts, which will range between 20% and 25%.

New gateways in 1953 will include points in the Middle East, the Indian sub-continent, and South America.

Senate-House Group Cites Industry Goals

Aviation achievements and goals have been outlined by the Senate-House "watch-dog" committee. Air carrier aircraft program of the CAA authorized production of 565 such aircraft between July 1, 1952, and June 30, 1954. Non-air-carrier aircraft authorized for construction during 1953 total 5,081, and 5,486 have been approved for 1954. Office of Aviation Defense Requirements issued 780 civil airport construction authorizations, with 561 of these for new projects. Authorizations for 89 construction projects were approved in the Federal airways program during fiscal 1952.

Jet Helicopter Seen

A jet-powered, 12-passenger version of the Sikorsky S-55 helicopter is expected in three years by Dr. Albert Plesman, president of KLM, who recently conferred with United Aircraft Corporation officials. A turbojet powerplant for the S-52 was also predicted by Dr. Plesman.

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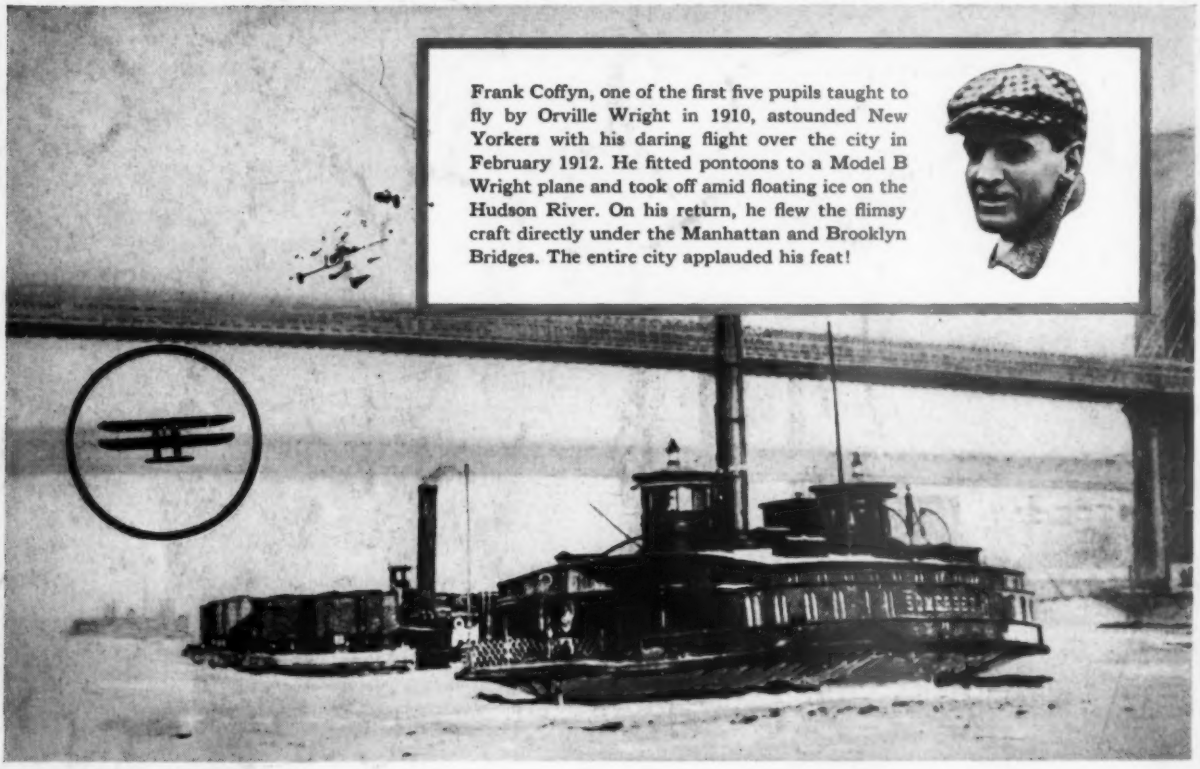
Frank Coffyn thrills New York—1912



Frank Coffyn, one of the first five pupils taught to fly by Orville Wright in 1910, astounded New Yorkers with his daring flight over the city in February 1912. He fitted pontoons to a Model B Wright plane and took off amid floating ice on the Hudson River. On his return, he flew the flimsy craft directly under the Manhattan and Brooklyn Bridges. The entire city applauded his feat!

FORTY YEARS LATER. Today Frank Coffyn still takes an active interest in aviation. A member of Hiller Helicopters' staff, he is shown here (left) seated with Stanley Hiller, Jr. in one of the firm's "360" helicopters.

The pages of aviation history are filled with remarkable exploits of adventure and research, experiments which helped pave the way for aviation's pre-eminent position in the world today!

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